THE AUTOMOBILE

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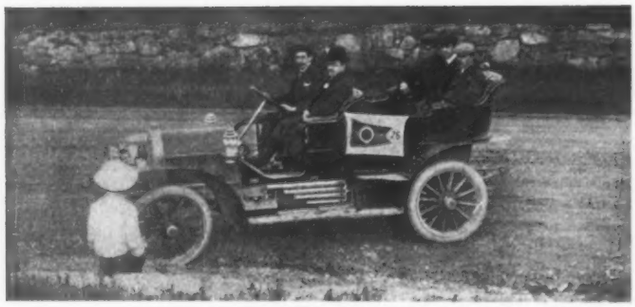
TWO-GALLON MILEAGES THAT PROVE MUCH

BY H. F. DONALDSON.

AMERICAN air-cooled cars carried off the principal honors in the two-gallon efficiency contest of the Automobile Club of America last Saturday. A Franklin runabout with two passengers traveled all the way from the starting point at Fifty-sixth street and Avenue A, New York, to New Haven on the official allowance of two gallons of gasoline, and won first place out of a list of nearly seventy contestants. The gross weight of the car was 2,700 pounds, and this mass was transported just eighty-seven miles on an outlay of about forty cents for fuel. Under the formulæ used by the contest committee, the official score for the car was 200,100. Second place was won by a Frayer-Miller five-passenger touring car, which scaled 4,070 pounds and covered forty-eight miles, its official score being 194,953 points. Third prize fell to a French water-cooled car, the 20-horsepower Darracq driven by S. B. Stevens, the well-known amateur racing man. He also carried five passengers, which brought the gross weight of the machine up to 3,910 pounds, and when his supply of fuel failed he was forty miles on the road to Boston. This fine performance

WAITING IN LINE TO GO ON THE SCALES PRIOR TO THE START OF THE CONTEST.



FORTY MILES OUT IN THE BERLIET.

CLUB SURVEYORS CHECKING MUSKOVIC'S FRAYER-MILLER.

THE BUICK FINISHES ON BAD HILL AT PORTCHESTER.

S. & M. SIMPLEX CROSS-COUNTRY CAR ON SHORE ROAD.

PERCY OWEN IN THE AEROCAR WAITING FOR RELIEF.

THE FRANKLIN CAR THAT WON THE CONTEST.

gave him a position on the official score of 181,580 points. An East Side brewery on First avenue between Fifty-sixth and Fifty-seventh streets was selected for the starting point, as the streets in the neighborhood are wide and vehicular traffic rather light for New York. Then, too, a big platform scale stands outside the brewery with a gentle slope from the north over which competing cars were rolled by hand to be weighed.

The course led from the official starting point at Avenue A and Fifty-sixth street to Fifth avenue, on which the cars turned north, passing the clubhouse in review and continuing in a general northeasterly direction along St. Nicholas avenue, and One Hundred and Fifty-fifth street to Central Bridge. Here the city proper might be said to have been left behind, and the next few miles led through the suburban districts bordering Jerome avenue, Fordham road and Pelham Parkway to the Shore Road—the familiar route to the Hub.

How the Start of the Contest Was Made.

For hours before the start, at 12:30 o'clock in the afternoon, the quiet of the East Side streets in the vicinity of the brewery was disturbed by the honking of horns and the musketry of exhausts as car after car dashed up to the curb. Beside the three score and six of starters there were many automobiles of spectators, press cars, and tenders carrying committeemen and supplies. About noon the scene at the start was really an open-air auto show. Never before at a contest were so many different types of cars grouped together. There were touring cars, domestic and foreign, with every style of body, cross country and full side entrance, with tops and canopies of as many different shapes and colors, closed cars and runabouts down to the diminutive Orient buckboard—which later made a splendid run—and even a tri-car which had been entered for a certificate of performance. And, towering high above all other contestants, the big Mack observation car held a roomful of passengers. And in the personnel there was about as much contrast as between the machines. Ladies occupied many seats in contestants' cars, and children were plentiful, even to babies in arms. At the other extreme were drivers of some of the imported machines; bearded Frenchmen, clothed for long distance travel, lending a serious sporting air

MACK OBSERVATION WAGON WAITING FOR START

S. B. STEVENS AND DARRACQ THAT WON THIRD PLACE.

ORIENT BUCKBOARD ON THE SCALES.

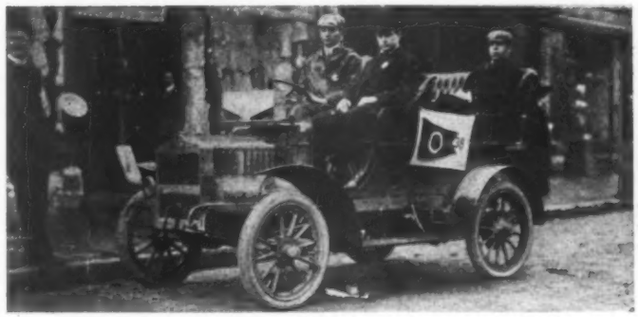
that suggested the road race rather than the legal-speed contest. Gasoline was never so free as at the start. Every car in the contest was required to empty its fuel tank to the satisfaction of the club inspector, who then saw that the two gallons were emptied from the official cans into the tank. Thrifty youngsters of the neighborhood brought pails to catch the supply that each car poured out, and in the interval between the official filling-up and the weighing-in, some of these youths offered the surplus fuel for sale to the contestants. As there was no official supervision of the cars in the interval only the drivers' consciences prevented a trade.

As each car was rolled on to the scales an observer was picked from a group of college students and others of a nondescript type who stood about, and the car was weighed in with the observer on board. A gang of able-bodied men then rolled the car further down the street toward the corner from which the course was measured; the driver cranked his motor and the car disappeared in the canyon of a city street.

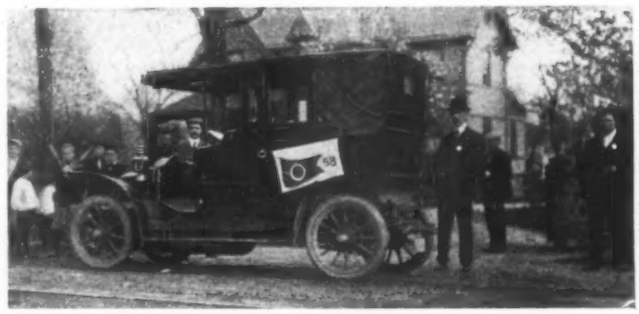
Up to the time the first few cars were sent away the morning was brilliantly fine, hot enough to make wraps a nuisance, but early in the afternoon the sky clouded up and signs of a storm made the committee anxious. By 2:30 o'clock the last car had been sent away, the neighborhood sightseers dispersed and the brewery hands resumed the making of beer.

Meanwhile the procession of cars, each with its banner bearing the club flag and the contest number tied to the body, had strung out far into the outlying suburbs of New York. Early in the contest an unexpected obstacle was met which certainly decreased the recorded mileage of some of the cars. The annual speedway parade of horse drivers had the right of way on many of the streets in the upper end of the city, and when a number of the competing machines reached One Hundred and Fifty-fifth street they could not follow the official route, but had to turn back and take another course to Central Bridge.

About the middle of the afternoon the signs of a storm gave place to the reality, and for the rest of the day rain fell in tropical showers. The streets ran rivers along each curb, and on the dirt roads the sticky mud made driving slow and dangerous. Slipping, skidding and splashing through pools, the cars pushed on, the passengers in the open machines soaked to the skin. Little dry goods stores in the towns did a splendid trade in cheap um-



MAXWELL-BRISCOE TOURING CAR IN STAMFORD, CONN.



RENAULT LANDAULET IN GREENWICH, CONN.

RELIEF CAR WHITE STEAMER ALONGSIDE THE MARTINI.

A. R. SHATTUCK IN HIS PACKARD WAITING FOR RELIEF.

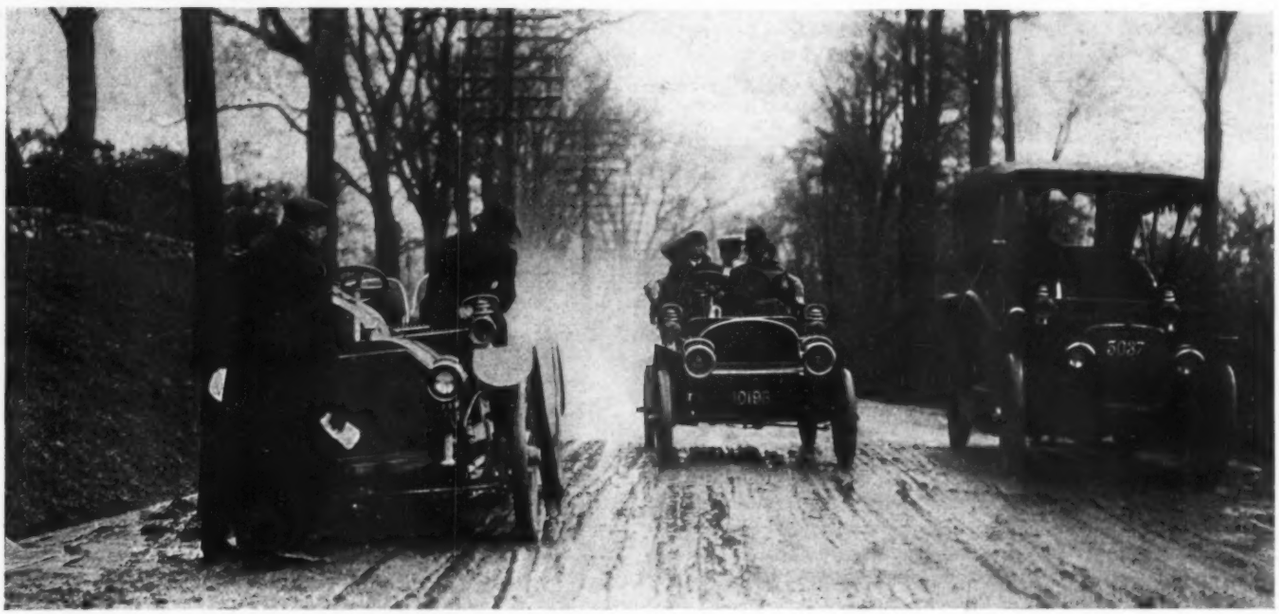
ONLY TWO-CYCLE CAR IN CONTEST—ELMORE.

brellas, for no one thought of quitting. There were dry stretches of fine macadam road in some of the beautifully kept towns in the route, and on these the temptation to do some fast high gear driving was irresistible. A few police reprimands were noticed. There was little or no racing between cars, however, for each contestant knew that speed at the expense of distance traveled was not worth while.

First to succumb was an imported machine, a Mors touring car carrying five passengers, which "went dead" by the roadside in the picturesque town of Bartow, not far from the New York Athletic Club grounds. The Mack observation wagon surprised the knowing ones by covering a fraction more than seventeen miles, and incidentally capturing fifth place in the scale of awards under the formulæ of the committee. The transportation of nineteen pas-

MECHANICAL DATA OF CARS ENTERED IN AUTOMOBILE CLUB OF AMERICA TWO-GALLON EFFICIENCY CONTEST, NEW YORK, SATURDAY, MAY 5, 1906.

Official Number.	Entered by	Make.	H.P.	Type of Car.	Number of Cylinders.	Bore and Stroke	Cooling.	Ignition.	Compression. lbs.	Speeds	Drive.	Tires.
1	Frayer-Miller Motor Car Co.	Frayer-Miller	24	tourist	4	4 1-16 x 5½	air	h. t. coil	70	4	shaft	Continental
2	Albert B. Hilton	Locomobile	30–35	tourist	4	4½ x 5½	water	m. & b. mag.	80	3	chain	Diamond
3	The Hol-Tan Co.	F. I. A. T.	20	tourist	4	105 x 130 mm.	water	m. & b mag.	65	4	chain	Michelin
4	A. R. Shattuck	Packard	24	tourist	4	4½ x 5½	water	h. t. mag.	75	3	shaft	Fisk
5	Calvin T. Adams	Darracq	30–35	tourist	4	120 x 130 mm.	water	m. & b. & j. s.	..	3	shaft	Michelin
6	A. Ward Chamberlain	Packard.....	24	tourist	4	4½ x 5½	water	h. t. mag.	74	3	shaft	Diam. & Mich.
7	Dave H. Morris	S. & M. Simplex	30	tourist	4	4½ x 5½	water	jump spark	74	4	chain	Michelin
8	R. G. Morris	Franklin	12	light t'rist	4	3¼ x 3½	air	jump spark	50	2 (plan)	1 chain	Goodrich
9	F. E. Moskovics	Frayer-Miller	36	tourist	6	4 1-16 x 5½	air	h. t. coil	72	4	shaft	Continental
10	Frayer-Miller Motor Car Co	Frayer-Miller	24	tourist	4	4 1-16 x 5½	air	h. t. coil	72	4	shaft	Continental
11	E. P. Chalfant	Orient	4	buckboard	1	3½ x 4½	air	h. t. coil	64	(disc drive)	.....	International
12	E. P. Chalfant	Orient	4	buckboard	1	3½ x 4½	air	h. t. coil	64	(disc drive)	.....	International
13	D. W. Pardee	Stoddard-Dayton	30	tourist	4	4½ x 5	water	h. t. coil	60	3	shaft	Firestone
14	Napier Motor Co. of America	Napier	18	runabout	4	3½ x 4	water	h. t. coil	70	3	shaft	Michelin
15	Decauville Auto Co.	Franklin	12	tourist	4	3¼ x 3½	air	h. t. coil	60	3	shaft	Diamond
16	Dr. Wm. M. Polk	Panhard	15	tourist	4	3½ x 4	water	h. t. coil	..	4	chain	Michelin
17	John B. Trevor	Renault	14	brougham	4	.....	water	h. t. mag.	..	3	shaft	Mich. & Sams'n
18	E. H. V. Co.	Compound	16	light tourist	3	4 x 4	water	h. t. coil	90	3	shaft	Pennsylvania
19	E. H. V. Co.	Compound	16	light tourist	3	4 x 4	water	h. t. coil	90	3	chain	Pennsylvania
20	American Generator Co.	Panhard	12	tourist	4	90 x 130 mm.	water	h. t. coil	70	4	chain	Michelin
21	Cryder & Co.	Leon-Bollee	40	tourist	4	130 x 150 mm.	water	bat. & mag.	80	4	chain	Michelin
22	J. Parke Channing	Winton	16–20	tourist	4	3½ x 5	water	m. & b. mag.(?)	60	2	shaft	Goodrich
23	L. R. Burne	Cadillac	10	runabout	1	5 x 5	water	h. t. coil	60	(plan) 2	1 chain	Dunlop
24	Walter C. Martin	Cadillac	10	runabout	1	5 x 5	water	h. t. coil	60	(plan) 2	1 chain	Dunlop
25	H. K. Burras	Berliet	24	tourist	4	100 x 120 mm.	water	l. t. mag.	..	.....	chain	.....
26	Carl H. Page	White Steamer	18	tourist	2 comp'd	2½ & 5 x 3½	cond'ser	.....	..	2	shaft	Diamond
27	Percy Owen	Aerocar	24	tourist	4	4 x 4	air	h. t. coil	70	3	shaft	Continental
28	Charles M. Jacobs	Rochet-Schneider	24–35	tourist	4	120 x 140	water	l. t. mag.	75	4	chain	Michelin
29	Wm. H. Barnard	La Comete	25–30	tourist	4	.....	.....	.....	..	.....	.....	.....
30	C. D. Alton, Jr.	Columbia	24–28	tourist	4	4 x 4½	water	l. t. mag.	85	3	shaft	.....
31	F. Ed. Spooner	Franklin	12	tourist	4	3¼ x 3½	air	h. t. coil	60	(plan) 2	1 chain	Goodrich
32	Chas. D. Van Schaick	Covert	6½	runabout	1	4 x 4½	water	h. t. coil	60	2	shaft	.....
33	W. J. P. Moore	Moore	40	runabout	4	4½ x 5½	water	d'ble h. t. mag.	85	4	shaft	Continental
34	Dr. Edwin Steese	Elmore	35	tourist	4	4½ x 4	water	h. t. coil	60	3	shaft	Fisk
35	Hugh J. Grant	Renault	14	brougham	4	90 x 120 mm.	water	h. t. coil	..	..	shaft	Michelin
36	John Kane Mills	Oldsmobile	7	tourist	1	5 x 6	water	h. t. coil	80	(plan) 2	1 chain	Diamond
37	Maxwell-Briscoe Motor Co.	Maxwell	10	runabout	2	4 x 4	water	h. t. coil	65	(plan) 2	shaft	International
38	Maxwell-Briscoe Motor Co.	Maxwell	16	tourist	2	5 x 5	water	h. t. coil	60	3	shaft	Ajax
39	Augustus Post	White Steamer	15	tourist	2 comp'd	2½ & 5 x 3½	cond'ser	.....	..	2	shaft	Diamond
40	White Sewing Machine Co.	White Steamer	18–20	tourist	2 comp'd	2½ & 5 x 3½	cond'ser	.....	..	2	shaft	Diamond
41	Welch Motor Car Co.	Welch	50	tourist	4	4⅜ x 5	water	h. t. coil	80	2	shaft	Continental
42	A. F. Mack	Mack	40–50	18 pas. tour.	4	5½ x 6	water	h. t. coil	70	4	chain	Hartford
43	Palmer & Christie	Martini	30–40	tourist	4	125 x 140 mm.	water	l. t. mag.	..	4	chain	Continental
44	Irving Brokaw	Mercedes	40	runabout	4	120 x 150 mm.	water	l. t. mag.	..	4	chain	Michelin
45	F. M. Dampman	Indian	1¾	tri-car	1	2 19-32 x 3	air	h. t. coil	..	..	chain	G & J
46	Frank C. Armstrong	Bliss	40	tourist	4	4½ x 6	water	h. t. coil	65	4	chain	Michelin
47	William Ives	Peerless	30	tourist	4	4½ x 5	water	h. t. coil	..	..	shaft	Diamond
48	Miss Clara Wagner	Franklin	12	tourist	4	3¼ x 3½	air	h. t. coil	60	3	shaft	Goodrich
49	Decauville Auto. Co.	Franklin	30	tourist	6	4 x 4	air	h. t. coil	60	3	shaft	Diamond
50	R. G. Howell	Franklin	20	tourist	4	4 x 4	air	h. t. coil	60	3	shaft	Diamond
51	Decauville Auto. Co.	Franklin	12	runabout	4	3¼ x 3½	air	h. t. coil	60	(plan) 2	1 chain	Diam. & G'rich
52	J. B. F. Herreshoff	Packard	24	tourist	4	4½ x 5½	water	h. t. coil	..	3	shaft	Diamond
53	John Henry Hammond	Northern	18	tourist	2	.....	.....	.....	..	..	.....	.....
54	Majestic Auto. Co.	Queen	26–28	tourist	4	4¼ x 4¾	water	h. t. coil	65	3	shaft	Goodyear
55	C. E. Knoblauch	Columbia	40–45	tourist	4	5 x 5	water	h. t. coil	85	4	chain	Continental
56	Wayne Auto. Co.	Wayne	24	tourist	4	4 x 5	water	h. t. coil	62	3	shaft	Fisk
57	Col. John Jacob Astor	Mors	40–52	tourist	4	5 x 6	water	m. & b. mag.	90	4	chain	Michelin
58	J. Horace Harding	Renault	10	landaulet	4	3 x 4 23-32	water	h. t. mag	..	3	shaft	Michelin
59	Archer & Co.	Hotchkiss	35	tourist	4	4⅜ x 4¾	water	magneto	80	4	shaft	Michelin
60	C. M. Bouggy	Amer. Mercedes	45	tourist	4	4 23-32 x 5 29-32	water	m. & b. mag.	65	4	chain	Continental
61	Duryea Power Co.	Duryea	12–15	runabout	3	4½ x 4½	water	m. & b. mag.	50	2	1 chain	Hart. Dunlop
62	Arnold & Stearns	Compound	16	tourist	3	4 & 7 x 4	water	h. t. coil	90	3	shaft	Diamond
63	H. A. Lozier, Jr.	Lozier	40	tourist	4	4⅜ x 5½	water	h. t. mag & bat.	70	4	chain	Diamond
64	Lozier Motor Co.	Lozier	40	tourist	4	4⅜ x 5½	water	h. t. mag & bat.	70	4	chain	Diamond
65	Emerson Brooks	Reo	16	tourist	2	.....	water	h. t. coil	..	..	.....	Fisk
66	Leslie B. Farmer	Oldsmobile	4	runabout	1	4⅜ x 6	water	h. t. coil	..	(plan) 2	1 chain	Fisk
67	Andrew Freedman	Rochet-Schneider	40–50	tourist	4	140 x 140 mm.	water	m. & b. mag.	75	4	chain	Michelin
68	Darracq Motor Car Co.	Darracq	20–32	tourist	4	112 x 120 mm.	water	h.t.c'l& l.t.m'g.	..	3	shaft	Michelin
69	H. J. Koehler	Buick	22	runabout	2	4½ x 5	water	h. t. coil	95	(plan) 2	1 chain	Diamond
70	J. S. Bunting	S. & M. Simplex	30	runabout	4	4½ x 5½	water	h. t. coil	58	4	chain	Continental
71	S. B. Stevens	Darracq	15–20	tourist	4	90 x 120 mm.	water	l. t. & h. t.	..	3	shaft	Michelin



LOZIER DEAD ON LEFT. FRANKLIN RUNNING IN CENTER. "THE AUTOMOBILE" CAR ON RIGHT.

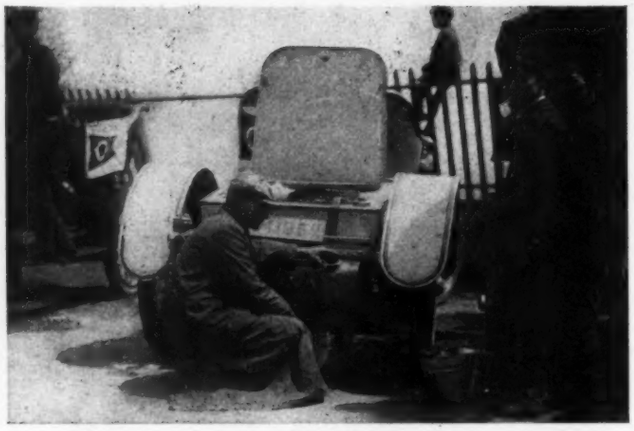
sengers from New York to New Rochelle on 40 cents worth of fuel was a demonstration worth while, even if it was not spectacular. About two miles further up the road a pair of big touring cars, domestic and foreign, kept one another company. Still further along the steamers were laid out at intervals of a few miles, these machines making very consistent performances, one White with five passengers covering nearly twenty-six miles, distancing many of its gasoline rivals. From Mamaroneck (22 miles) on the cars were more frequently seen stalled, some by the roadside and a few in the towns of Rye, Portchester, Greenwich, and Stanford.

If the rain dampened hopes and cut down mileage records made in practice, it also beautifully laid the dust and sprinkled the lawns. The trees and shrubs in the well-kept grounds of country houses took on new color, and the freshness of spring gave a charm to the scene at every turn in the road. Where this skirted the shore pretty views of Long Island Sound and white-canvased craft alternated with the wooded slopes and levels of private grounds, and every few hundred yards a colonial mansion or picturesque cottage gave shelter to little groups of suburban spectators.

In the towns the audiences were larger. The village oracle always had a group of listeners who couldn't quite understand

IN FRONT, LOCO WITH RIKER. IN MIDDLE, RELIEF WHITE STEAMER. IN REAR, PRESS CAR DRIVEN BY ANGUS SINCLAIR.

FILLING SPECIAL CONTEST TANK FROM TWO-GALLON CAN.



EMPTYING FUEL TANK BEFORE TAKING ON TWO GALLONS.

why a car should stop without the bonnet being raised or a tire detached. The mystery was not even cleared up when the relief car arrived with the official surveyors on board. The course had previously been surveyed and mile landmarks painted on houses and fences by the roadside, so that with a tape line the exact location of any car could be easily determined and the total distance traveled recorded. An inspection of the competing car was made at the same time, and especially of the relief cans of gasoline, which had been placed on board each machine at the weighing-in scale. When the inspection was completed the driver of the car in the contest was permitted to empty the relief can into his fuel tank and return to the city.

Many of the cars were equipped with special tanks, as appear in some of the accompanying photographs. These were usually attached to the dash and took the form of vertical cylinders with cone-shaped bottom connected to the special supply pipe to the carbureter. In all other respects the cars were equipped as stock machines.

There were three relief cars. One started working along the line from the city, another began work about twenty-five miles out, and the third was supposed to follow and overtake the leading car and work back toward New York. On account of the great distances covered by some of the cars in the contest the number of relief machines proved to be insufficient, and there were many long waits on the road, several hours in some cases, before the contestants were officially released.

Besides the high record of the winning car there were some remarkably long runs made. The little American tri-car covered almost 100 miles from the starting line, an Orient buckboard traveled 98.83 miles on the two-gallon allowance and the little Covert air-cooled runabout ran itself out of fuel after 73.75 miles had been left behind. The two-cycle Elmore went 28.12 miles, and one of the Compound cars 43.5 miles before the final stop. Single cylinder cars also did remarkably well in actual distance run; an Oldsmobile scored 56.3 miles and a Cadillac 55.5 miles, the latter with four passengers up.

The official results in full and data of the competing cars will be found in the accompanying tables. There may be some changes in the final awards, as many protests were filed. This, together with the large entry list and the unexpectedly long distances covered by some of the cars, delayed the final awards much longer than the contest committee had anticipated; it had, in fact, announced that the awards would be made after a continuous sitting.

The committee consists of Schuyler Skaats Wheeler, chairman; George F. Chamberlin and Charles G. Curtis.

How Reports Came to Headquarters.

Contrary to general expectation, the clubrooms did not attract many members during the afternoon and evening. Outside of the officials and their assistants, and later on some of the returning drivers, it is doubtful if a half dozen members showed up.

At 2:20 o'clock, when word came over the 'phone of the stopping of No. 60 at Portchester, only the regular clerks of the club were there. A little later the officials arrived from the scales. Thereafter every few minutes the telephone bell would ring and word come in of the stopping of a car. Newspaper men and returning observers soon began to crowd the rooms, and at 6 o'clock the parlor of the club presented a most animated appearance. At one end of the room were clerks with a computing machine receiving reports which were displayed on a large score sheet that had been prepared. Among the returning contestants was Irving Brokaw, who told of the storm and of the arrest of some of the competitors for speeding. He was held up by two officers but subsequently allowed to proceed.

MUSKOVIC'S FRAYER-MILLER ON SCALES WEIGHING IN.

A STOP ON THE ROAD TO FIX A TIRE.

RESULTS OF TWO-GALLON EFFICIENCY CONTEST, SHOWING ORDER OF WINNING, MILEAGE COVERED, WEIGHTS, NUMBER OF PASSENGERS AND POINTS WON.

Order of Winning	Name of Car	Official No.	Mileage Covered	Number of Pass.	Total Loaded Weight	Contest Weight	Points Figured by Formula
1	Franklin	51	87.0	2	1,500	2,300	200,100
2	Frayer-Miller	10	47.9	5	3,270	4,070	194,953
3	Darracq	71	46.44	5	3,110	3,910	181,580
4	Berliet	25	39.1	5	3,660	4,460	174,386
5	Mack	42	17.13	20	9,325	10,125	173,441
6	Franklin	15	58.4	4	2,140	2,940	171,696
7	Queen	54	41.4	4	3,160	3,960	163,944
8	Stoddard-Dayton	13	40.83	5	3,200	4,000	163,320
9	Lozier	64	30.28	6	4,490	5,290	160,181
10	Renault	17	36.61	3	3,400	4,200	153,767
11	Darracq	68	34.62	4	3,600	4,400	152,328
12	Compound	19	43.5	5	2,635	3,435	149,422
13	Frayer-Miller	1	35.5	5	3,400	4,200	149,100
14	Renault	58	36.83	4	3,240	4,040	148,793
15	Packard	6	30.25	6	4,110	4,910	148,527
16	Napier	14	49.1	2	2,220	3,020	148,282
17	Compound	18	43.4	5	2,610	3,410	147,994
18	Franklin	48	48.32	4	2,240	3,040	146,892
19	Am. Mercedes	60	27.77	7	4,440	5,240	145,556
20	Orient Buckboard.	12	98.83	2	930	1,451	143,358
21	Frayer-Miller	9	29.40	7	4,055	4,855	142,737
22	Packard	52	30.56	5	3,860	4,660	142,409
23	Packard	4	32.51	4	3,580	4,380	142,393
24	Franklin	50	39.86	5	2,720	3,520	140,307
25	La Comete	29	26.0	6	4,540	5,340	138,840
26	Locomobile	2	25.41	7	4,640	5,440	138,230
27	Aerocar	27	33.79	5	3,250	4,050	136,849
28	Orient Buckboard.	11	93.8	2	920	1,444	135,447
29	Duryea	61	53.5	4	2,030	2,525	135,114
30	S. & M. Simplex	7	28.64	5	3,900	4,700	134,608
31	Franklin	31	44.5	5½	2,220	3,020	134,390
32	Franklin	8	45.0	4	2,170	2,970	133,650
33	Cadillac	24	55.5	4	2,250	2,375	131,812
34	Martini	43	26.88	4	3,970	4,770	128,712
35	Franklin	49	31.84	5	3,230	4,030	128,315
36	Flat	3	30.43	3	3,340	4,140	125,980
37	Compound	62	39.49	4	2,360	3,160	124,788
38	Columbia	55	24.3	5	4,220	5,020	121,986
39	Covert	32	73.75	2	1,220	1,654	121,982 ?
40	Rochet-Schneider	28	25.34	4	4,000	4,800	121,632
41	Renault	35	30.55	4	3,180	3,980	121,589
42	Mercedes	44	28.63	3	3,410	4,210	120,532
43	Elmore	34	28.2	5	3,380	4,180	117,876
44	Darracq	5	26.81	3	3,560	4,360	116,891
45	Indian Tri Car	45	99.8	2	500	1,150	114,770
46	Winton	22	28.5	5	3,080	3,880	110,580
47	Oldsmobile	36	56.3	2	1,660	1,962	110,460
48	Hotchkiss	59	23.1	5	3,900	4,700	108,570
49	White Steamer	40	25.96	5	3,380	4,180	108,512
50	Maxwell	38	36.01	5	2,640	2,780	100,107
51	Cadillac	23	48.6	2	1,780	2,046	99,435
52	Columbia	30	26.28	4	2,920	3,720	97,761
53	White Steamer	26	23.81	4	3,225	4,025	95,835
54	S. & M. Simplex	70	24.13	2	3,110	3,910	94,348
55	Bliss	46	19.01	5	4,140	4,940	93,909
56	White Steamer	39	22.51 ?	5	3,370	4,170	93,867
57	Wayne	56	22.0	5	3,000	3,800	83,600 ?
58	Mors	57	15.72	5	4,490	5,290	83,158
59	Oldsmobile	66	45.5	2	1,330	1,731	78,760
60	Panhard	20	19.53	4	3,190	3,990	77,924
61	Northern	53	25.87	3	2,760	2,870	74,246
62	Buick	69	28.78	2	2,280	2,510	72,237

Those that did not start or failed to finish.—

No.	Car.	Remarks.
16	Panhard	Did not start.
20	Panhard	Withdrew with hot engine.
21	Leon Bollee	Did not start.
33	Moore	Did not start.
37	Maxwell	Did not wait for relief car; disqualified.
41	Welch	Did not start.
47	Peerless	Did not finish.
63	Lozier	Got off the course; disqualified.
65	Reo	Withdrawn.
67	Rochet-Schneider	Did not start.

During the evening the formulæ on which the contest was based aroused some discussion, and somebody figured that the little Orient buckboard would have to reach the Maine woods to win a prize. Reports continued to come in but slowly, and one heard continued inquiries for cars from which no report had been received. In this case no news was considered good, the inquirers consoling themselves with the idea that the cars were still running. From the returning contestants all kinds of stories of hard luck were heard, one car stopping a few feet from the brow of a hill from which it could have coasted a mile. Another told of being held up in a traffic block; another of a leaking tank, and so on down the usual list of troubles. At midnight there was a big proportion of the starters not heard from, and a decision in the contest looked highly improbable for several days.

Winning Cars Repeat Record Performances.

To prevent any possibility of dispute of the performances of the two leading cars, the Contest Committee called upon the Franklin and Frayer-Miller entries to repeat the run under the original test conditions. The winners promptly accepted, and on Tuesday the run was repeated, with results exceeding the records made on Saturday. The Franklin runabout covered 95 miles, reaching a point about one mile beyond Wallingford, Conn. The Frayer-Miller, with its load of five passengers, stopped at 59.8 miles from the start. Both cars would probably have made better performances, but that the driver of the Frayer-Miller was delayed by arrest for speeding, and the Franklin got off the road.

WORCESTER TO HAVE ANOTHER CLUB.

WORCESTER, MASS., May 7.—A club to be devoted to automobilists exclusively is being formed, and plans are so far matured that Memorial Day has been set for the opening. The new club has been formed with a membership limit of 300, and this has already been reached. The entrance fee is $50, and the yearly assessment is $25. Recently the Worcester Automobile Club changed its policy so that it was not necessary to be an automobilist to become a member, and its membership owing to the new change reached 300.

The new club has purchased the famous Hermitage estate, located near the city on a hill that commands some excellent views. The cost price is said to be $27,500. Located on it are the Hermitage and Vista lodges, the estate has its own heating and lighting plants, and taken all in all will fill the bill to a nicety. The club plans to provide a country home for its members, with facilities for lunching and remaining over night, and for the housing of cars. George W. Beals, of Boston, for the past fourteen years secretary of the Boston Athletic Association, is the temporary secretary, and Irving S. Brown, of this city, is temporary treasurer. The temporary organization is in the hands of a special committee.

JOSEPH H. WOOD NOW CLUB PRESIDENT.

NEWARK, N. J., May 7.—The annual meeting of the enterprising New Jersey Automobile and Motor Club was well attended. These are the new officers: President, Joseph H. Wood; vice-president, Angus Sinclair; secretary, H. A. Bonnell; treasurer, James C. Coleman. The trustees elected were Dr James R. English, J. W. Mason, W. C. Shanley, and Paul E. Heller.

NEW QUARTERS FOR BAY STATE A. A.

BOSTON, May 7.—The Bay State Automobile Association has secured new clubrooms at 281 Dartmouth street. It is a four-story building and will be occupied by the club exclusively. An experienced chef will have charge of the café, which will be run for the benefit of club members. The rooms will be ready for occupancy June 1.

MAY MEETING OF THE N. A. A. M.

Thirteen members attended the May monthly meeting of the N. A. A. M. executive committee, held in New York City, May 3.

R. Harry Croninger, of the Dayton Motor Car Company; J. B. Bartholomew, of the Bartholomew Company; Benjamin Briscoe, of the Maxwell-Briscoe Motor Company; and R. E. Olds, of the Reo Motor Car Company, were admitted to membership.

The legislation committee reported that it had received advices from Albany that the L'Hommiedieu bill had been defeated in the committee on rules, thus disposing of all legislation and leaving the situation in the same condition as has prevailed for the last eighteen months.

The good roads committee reported that the association's contribution toward the maintenance of the good roads bureau at Washington, designed to further the interests of the Brownlow bill providing for national aid in the construction of good roads, had expired, and expressed the opinion that in view of the action of New York state, which is likely to be followed by other states, in providing ample funds for state aid, it would be almost impossible to secure assistance from the national government. The executive committee decided that it would be the part of wisdom to discontinue the operation of the bureau in Washington.

A committee composed of President O. A. Quayle, F. H. Elliott, H. A. Meldrum, F. H. Mason, and H. S. Woodworth, representing the New York State Automobile Association, laid before the committee certain plans designed to further the interests of automobilists and automobile legislation. The subject was referred to the legislative committee, which will report at a subsequent meeting.

What Information the Bisons Took Home.

BUFFALO, May 5.—President H. A. Meldrum of the Automobile Club of Buffalo and Secretary F. Howard Mason of the Chamber of Commerce returned this morning from New York, where they had been in an endeavor to pursuade the National Association of Automobile Manufacturers to hold a big annual fall show here. Messrs. Meldrum and Mason did not succeed, but that does not mean their plan and the advantages offered were looked upon with disfavor. It was because the manufacturers have decided not to hold a show this fall, believing they would not have time to prepare for one in a proper and advantageous way.

"The manufacturers," Mr. Mason said, "have recently taken action to hold shows in New York and Chicago next winter and did not feel like taking on another one, but we received much encouragement and believe Buffalo will yet secure a great national show. Our idea was not so much to hold an exhibition, pure and simple, as to combine it with an event that would be of benefit to manufacturers by bringing them together in the fall so that they could place agencies, show their new models, trade and generally transact business. It is our belief that such a show in the fall would facilitate the earlier delivery of new cars in the spring."

A Resolution That Settles an October Show.

This is a copy of the resolution adopted by the Executive Committee of the N. A. A. M. at its meeting, May 2, but not given out for print until Tuesday of this week:

"WHEREAS this committee has been waited upon by a committee of gentlemen representing the city of Buffalo, with a view to securing the co-operation of this association in the promotion of a national show in Buffalo in October, which committee has presented arguments intended to demonstrate that such a show would prove beneficial to the manufacturers, be it

"RESOLVED, that in the opinion of this association the promotion of such a show would be inadvisable, for the reasons that it would entail the expenditure of a large sum of money without compensating advantages; that it would prove a disturbing element in a situation at present satisfactory to a large majority of the trade; that none of the reasons advanced by the gentlemen from Buffalo, or by any other persons, warrant a departure from the recent decision of this executive committee that any shows in addition to those already decided upon are inadvisable; and that such a show could not interest manufacturers to such an extent as to prove creditable to the trade or to the city of Buffalo."

The N. A. A. M. has on record a resolution to the effect that no manufacturer shall be permitted to exhibit at a sanctioned show who has exhibited at an unsanctioned show. It may be taken for granted that if an outdoor, or any other, show is held in October or November, it will not be sanctioned. The Chicago show and the Madison Square Garden show will both be sanctioned. One of the conditions of the sanctions is that the Association's resolution shall be enforced. In other words, that these shows will not permit anyone to exhibit who has taken part in an unsanctioned show.

DELEGATES CONFER WITH A. L. A. M.

While the representatives of the New York State Automobile Association were in New York City last week a conference was had with the A. L. A. M. officers in regard to the proposition that some of the A. L. A. M. show profits be apportioned to the A. A. A. for the purpose of carrying on the national work of the organization. It is understood that Treasurer H. H. Franklin considers some such plan with favor, and it is said that the A. L. A. M. will give it serious consideration.

LABOR DAY RACE AT ROCHESTER, N. Y.

The New York State Automobile Association, with the Rochester Automobile Club looking after the running of the race, will hold a 100-mile road contest near Rochester on Labor Day. The exact details of the race have not been decided upon, except that there will be a substantial prize list with a $1,000 cup to the winner. It is expected that the race will yield a substantial profit that will be utilized in carrying on the work of the state association.

A circuit of about twenty-five miles in Monroe county has been found suitable, and it is understood that the inhabitants of the section will allow the automobilists to have the exclusive use of it. The race may be run in the afternoon. A resident of Syracuse, N. Y., who is an ardent motorist, has offered a cup valued at $1,000 for the race. The entrance fee will probably be placed at $250, and the contest will be open to competitors from any country. It is also intended to run an amateur contest for stripped touring cars, this event to take place in the morning.

FRANCE AND ITS VANDERBILT CUP TEAM.

With no elimination event like that of the Gordon Bennett race of last year, the exact manner in which the French team for the Vanderbilt Cup race will be selected remains undecided. Here is some comment from the *Automotor Journal*, an English source:

"For this race Darracq & Co. are desirous of running two of their cars to represent France. The A. C. de France, however, have already disowned the cup, which was secured last year by a French car, and have announced that they will not take any further part in the contest, as the rules being based practically upon those of the Gordon Bennett race do not give France the preponderating representation to which the French Club considers she is entitled. The question now arises is what will be done to get over the difficulty? Some French makers do not approve of the decision of the A. C. F., as it will be seen, and are willing and anxious to fight, and if possible again secure the trophy. Probably the American authorities will cut the knot by accepting approved entries direct from manufacturers, under the circumstances, instead of only through the A. C. F. as the representative club."

Thirty-two entries have been received for the Scottish Reliability Trial, which starts from Glasgow on June 13.

SPECIAL AUTO STEELS AND THEIR PROPERTIES

By RENE M. PETARD.

IN the direction of the betterment of materials of engineering construction the automobile has occasioned much progress. Really wonderful results have been obtained in automobile development, in reductions in weight and space occupied, previously unknown to engineers, and the scope of mechanical possibilities has been considerably enlarged thereby. The call on the metallurgist for new metals and mixtures has been continuous, and he has risen to the occasion, even surprising himself with the results accomplished and so developing an enthusiasm in research and experiment that has resulted in a remarkable rearrangement of some of the tables of properties of materials.

To the automobilist the results are most strikingly manifested in the tremendous power and ability of modern racing cars, in which, throughout all the advances, the weight has been a constant. A consideration of these new materials is therefore of general interest, and in the following the special mixtures of steel will be discussed, in a simple way, with occasional reference also to some of the more familiar materials of construction.

The Properties of Carbon Steel.

Under the comprehensive term of "carbon steel" is classified a large variety of grades of alloys of iron and carbon, in which the latter is so intimately combined with the former that its presence can only be detected by chemical analysis, this being said to differentiate steel from cast or gray iron, in which the carbon is only partly if at all combined with the iron. Its presence can be detected sometimes by the naked eye, but more generally by the action of acids on polished samples, in which case the carbon which the acid does not alter stands out in particles plainly seen through a magnifying glass.

Carbon steel, which is a combination of only two simple principal elements, sometimes contains infinitesimal quantities of foreign metals. These are sometimes unfavorable to the satisfactory use of the metal, but seldom are of sufficient importance to be taken into account when classifying the material.

In special steels, on the contrary, other components come into action besides those of the carbon steel and give new properties to the metal. Amongst these foreign substances those which so far have had an important part in the production of practically usable combinations are: Silicon, manganese, chromium, nickel, tungsten, molybdinum and vanadium.

Steel Classification and Its Ramifications.

According to the classification generally used by French metallurgists for the purpose we shall consider carbon steel as a "binary" steel. Those metals which contain a third important element besides carbon and iron will be classed "ternary," and those containing a fourth element will naturally be the "quaternary" steels. Considering simply these three large classes and the seven elements already named, it will be seen what a large number of combinations can already be formed even if no account is taken of the proportions in which the constituent elements are added to the basis of carbon and iron. But it should be further considered that these proportions are all important, and that according to them materials of widely differing properties can be obtained; for instance, a 15 per cent. nickel steel bears no relation whatever in physical properties to a 25 per cent. steel. To quote another example, manganese steel had long been the bugbear of metallurgists, who never could obtain anything of it, when came Mr. Hadfield, who produced the remarkable manganese steel bearing his name.

This will give the reader an idea of the infinite number of steels which can reasonably be expected to appear as the time goes, each with distinct properties, and also of the difficulty experienced by the designer even now, when he has to select amongst the quantity of various materials offered, that which will suit best his particular purpose. Add to this that a mere mechanical operation, or an unforeseen thermic treatment of the material has been known to entirely alter its constitution, and the present almost chaotic state of this newly born branch of applied science will be somewhat realized.

Some Recent Tests by Dr. Guillet.

Some light has been thrown on the subject by the recent work of Dr. Guillet, the head chemist at the De Dion factory, where he is in charge of the testing of the materials received. Aided by the very complete installation of the De Dion laboratories, Dr. Guillet has attentively studied ternary steels and has made public the result of his researches. The processus of his studies was as follows: Taking the principal kinds of ternary steels known, and those of the composition of which he was absolutely certain and of which he knew how they could industrially be produced in large quantities, he determined their interesting physical properties, their behavior when case-hardened or tempered, in short, all the possible interesting data, and found that by comparing grades of steel sufficiently close in constitution he could often establish fairly regular diagrammatic curves permitting him to deduct the *likely* (not the absolutely certain) properties of any given combination by comparing with the two nearest ones in the diagrams. These diagrams can only be considered, evidently, as hypotheses which the future, that is, actual experience, will confirm or invalidate, but even then they certainly are useful guides for the present.

Automobile designers in Europe specially use: Nickel steel, silicon steel, and nickel chrome steel. In England vanadium steel is very extensively used.

The richest and best-known class of special steels is that of nickel steel. It has given some extremely satisfactory grades of metal, but also some very disappointing ones; it will consequently be that which we shall most lengthily consider.

The Four Principal Classes of Nickel Steels.

Amongst nickel steels, four principal classes will have to be grouped, according to one of the most important characteristics of a steel intended for industrial use; that is, according to behavior under heat treatment. We shall consider: First, the casehardening nickel steel; second, the tempering nickel steel; third, the nickel steel on which heat treatment has no effect; fourth, and last, that which softens by tempering.

Casehardening Nickel Steel.—It has long been known that the presence of nickel destroys the cause, whatever it may be, of the brittleness of casehardened carbon steel. This is most evident with a 2 per cent. nickel steel. A 2 per cent. nickel steel, casehardened and tempered, preserves in its central part the fibrous texture which is a characteristic of a break after flexion and pull. It is equal in this respect to good iron and is the "hickory of steels."

After exhaustive tests, 2 per cent. nickel casehardening steels have become a commercial article in France and are often sold as special steels at abnormally high prices on account of this precious property. Experiments were made in which the percentage of nickel was increased, but the lower price of the 2 per cent. steel made it more interesting for the manufacturer. The security when parts were made with the same proportions as for carbon steel was very great with this 2 per cent. steel; it, however, has several drawbacks.

Two Per Cent. Nickel Steel.

More than carbon steel, the 2 per cent. nickel steel is liable to develop flaws. Forging or rolling have to be attended to with

the utmost care. Further, it was discovered that the hard skin on the outside of the parts was not quite as hard as that obtained on carbon steel after the same treatment. And in large orders, inducing the mill to make a large quantity of metal in one batch, it was found that some parts absolutely refused to harden. The reason for this is as follows: Small quantities were made in crucibles, when very homogeneous products were obtained, but for large quantities the furnace was resorted to, and the result was that the difference in density of the nickel prevented it from thoroughly combining with the steel, leaving spots of pure nickel which evidently would not take case-hardening. A third drawback, which sometimes entirely prevented the use of nickel steels, is the relatively great difference in size which sometimes exists between the untreated finished part, and the same part after casehardening and tempering.

In carbon steel parts it is often desired to decrease the brittleness caused by casehardening. In order to do this the part is annealed twice (that is, reheated and cooled slowly twice), and tempered at a suitable temperature after each annealing operation. The drawback of this is that the variation in size caused by tempering is doubled by the process. It was expected of the 2 per cent. nickel steel that as the same result as regards brittleness could be obtained with the first tempering operation the variation would be halved. The opposite happened. It was soon discovered that 2 per cent. nickel steel shrinks by tempering. A most striking example was that of the bore of the sliding set in a gear box; this was bored 28 mm., and when measured after tempering and hardening was found to be 30 mm., which naturally led the part straight to the scrap heap and the designer to profanity. This most troublesome phenomenon, being just the contrary of what takes place with carbon steel—which expands by tempering—is worthy of a little explanation.

The addition of nickel to a carbon steel causes it to have a lower temperature of transformation than it had before the addition. By temperature of transformation is meant that above which it is necessary to bring the steel before tempering in order to harden its surface. Or, in other terms, at a temperature of say 900 degrees centigrade, nickel steel will be softer than the corresponding carbon steel, with the consequence that if both are forged or rolled at the same temperature the nickel steel will be more "compound" than the carbon steel, and the heating process before tempering will cause a greater variation in size. This has led experienced makers to forge nickel steel at a lower temperature than carbon steel and to anneal, before machining, when the forging process is finished. In fact, some builders, in order to have the minimum loss when treating expensive parts, go as far as annealing them several times during the machining process.

From the foregoing it will be seen that 2 or 3 per cent. is the correct proportion for a corresponding nickel steel if the most certain results and the most reasonable price are desired. Above this the cost price of the material is considerably increased, and, besides, the steel becomes more brittle. A few steel makers in France recommend 6 per cent. nickel, claiming that parts made of such steel do not vary in size after tempering; there, however, does not appear to be any foundation for such a claim.

A grade of casehardening nickel steel, the composition of which is unknown to the writer, is placed on the market by one particular maker, which has the great advantage of taking by mere casehardening, without tempering, a skin equal in hardness to that of hardened and tempered carbon steel. The advantage of this is obvious, there being no tempering there is no alteration in size, and for the same reason the part does not lose its hardness by accidental heating, when a tempered part would lose its temper very quickly.

This steel is amongst the most interesting grades in this class, but users of it should keep in mind that it cannot be expected to be free from the principal drawbacks of the other grades of nickel steel. As all others, it may show up flaws. Casehardening alone sometimes causes variations in size, especially if the part has not been well annealed before finishing to size. Cooling, especially if not quite as slow as desirable, is always liable to create internal strains which will possibly warp light parts. The least action resembling tempering which may take place during the process, if not extremely carefully done, is liable to harden the part clean through and consequently make it more brittle than expected.

Tempering Nickel Steel.—Some 2 to 6 per cent. nickel steels are made which can be tempered without casehardening, their elastic limit and their terrible strength are raised by the process; chrome-nickel steels are, however, more interesting in this respect.

Indifferent Nickel Steel.—These are of medium percentages of nickel; the quantity of carbon contained affecting them greatly, no definite figures can be given. These steels, upon which annealing or tempering have no action, are very difficult to forge or to cut. They can only be annealed between very narrow limits and with special care, and even then the result is very slight. From this it will be seen that they present very little practical interest. They have been practically given up.

Nickel Steel Softened by Tempering.—These are the grades high in nickel. They are rather soft and never are brittle to the least extent. They are impervious to oxidation within practical limit, this quality being that of the nickel of which they contain a large proportion. They also are characterized by their valuable quality of possessing a very low coefficient of expansion when heated, a 25 per cent. nickel steel being absolutely free from expansion at any temperature, being perhaps unique in this respect. The whole of these qualities has made this steel a wonderfully satisfactory material for internal combustion engine valves, and for this reason French makers almost exclusively use it for this purpose. The material employed is very low in carbon and contains from 20 to 33 per cent. of nickel.

(To be continued.)

AUTOMOBILIST CELEBRATES HIS WEDDING.

Just to celebrate his wedding, and incidentally to show his prowess as a driver and his confidence in the Ford, in which he took his bride to the courthouse, a St. Joseph, Mo., chauffeur

BRIDEGROOM HATFIELD DRIVING UP COURTHOUSE STEPS.

furnished excitement for the crowd by running his car up the courthouse steps in that city twice. The car took the grade easily, although it is a climb not to be sneezed at, as the accompanying photograph shows.

A wedding in which the automobile figured prominently was held in Newport, R. I., last month, when Dutee Wilcox Flint and Miss Rose Howard were joined in matrimony. The bridegroom is state agent for the Ford cars, all of the ushers were prominent automobile enthusiasts, and the honeymoon trip was made in an automobile.

A PLAN FOR UNIVERSAL ROAD RULES

By JOHN L. JONES.

THERE seems to be a lack of definite understanding as to the rules and regulations governing the "Rules of the Road." For example, in some parts of the country the rule seems to prevail that cars traveling north or south have the preference at a junction over cars going in other directions. In other places, cars on certain streets, considered as the most important streets, have the preference, or "right of way," over cars on intersecting or cross streets. It may happen that two cars approach a crossing at the same speed on two streets of equal importance. The question suddenly arises, "Who has the 'right of way'"? "Who shall slow down, and who shall hold his speed?" As there is at present no rule covering the point, and when both drivers are accustomed to having their own way, the result is usually disastrous. This leads to another point, viz., "If a collision occurs under these circumstances, where shall the blame fall?"

It is easy to go further. Both drivers may be strangers to the locality—neither knows the relative importance of the street he is on as compared with the one he is approaching. Both may be ignorant as to the direction in which he is heading. This meeting may occur in the night-time, and who shall be responsible when the collision results? There are many other conditions under which uncertainty is dangerous. The automobile is a vehicle whose course may be changed very suddenly and without previous warning to drivers of other cars on the road, and a driver attempting to pass another car from behind may think that the driver ahead has heard him coming, and is turning out to give him room to pass, while in reality he is merely avoiding a rut or mudhole, and may turn back so quickly that a serious accident is unavoidable.

It may happen that just ahead of the point at which a driver may wish to pass another car going in the same direction there is a bridge, obstruction, or narrow part of the road, or some other cause which would make it dangerous to pass at this point. This danger would be appreciated by the driver of the car in front, but would be invisible to the driver of the car behind. In a case like this the former has no means of informing the latter, who may feel that the preceding driver is unreasonable in not allowing him to pass, and may become angry and excited and dash around the side, to the mutual disadvantage and damage of both cars, and, probably, to the drivers and passengers. And then, again, it may be considered by the first driver to be safe for the other car to pass him on one particular side, and highly dangerous to pass on the other side. At present he has no means of conveying this information.

All automobiles are equipped with a horn, whistle, or other device for giving warning signals, but these are used indiscriminately and no attention has been paid to the standardization of these warning signals, or to the adoption of a system of passing signals, which would avoid and prevent accidents and collisions due to uncertainty as to the intentions of "the other man."

Now, it is the purpose of the writer to suggest the universal adoption of a set of rules governing the use of warning and passing signals and signal lights, which has been thoroughly tried out and adopted by the United States Government, for the government of pilots of vessels on the Great Lakes. An adoption of the rules has been carefully made, which is suitable for the conditions obtaining on the road, as applied to automobiles, as follows:

Rules for the Government of Drivers.

Rule 1.—When cars are approaching each other "head and head," or nearly so, it shall be the duty of each car to pass to the right, or on the port side of the other; and the driver of either car may be first in determining to pursue this course and thereupon shall give, as a signal of his intention, one short blast of the whistle, which the driver of the other car shall answer promptly by a similar blast of his whistle, and thereupon such cars shall pass to the right, or on the port side of each other. But, if the course of such cars is so far on the starboard of each other as not to be considered by the drivers as meeting "head and head," or nearly so, the driver so first deciding shall immediately give two short and distinct blasts of his whistle, which the driver of the other car shall answer promptly by two similar blasts of his whistle, and they shall pass to the left, or on the starboard side of each other. **Provided**—That in all narrow streets, and in all places where there is a considerable hill or grade, the descending car shall have the right of way, and shall, before the cars shall have arrived within the distance of one hundred feet of each other, give the signal necessary to indicate which side she elects to take.

Note.—In the night, cars will be considered as meeting "head and head," or nearly so, so long as both the colored lights of each are in view of the other.

Rule 2.—When cars are approaching each other in an oblique direction, as shown in the diagrams of Fourth and Fifth Situations, so as to involve risk of collision, the car which has the other on her own starboard side shall keep out of the way of the other, which latter car shall keep her course and speed. The motor car having the other on her starboard side indicates by one blast of her whistle her intention to direct her course to starboard, and two blasts if directing her course to port: to which the other shall promptly respond, but the giving and answering of signals by a car required to keep her course shall not vary the duties and obligations of the respective cars.

Rule 3.—If, when cars are approaching each other, the driver of either car fails to understand the course or intention of the other, whether from signals being given or answered erroneously or from other causes, the driver so in doubt shall immediately signify the same by giving several short and rapid blasts of the whistle; and if the cars shall have approached within one hundred feet of each other, both shall be immediately slowed to a speed not greater than eight miles per hour until the proper signals are given, answered and understood, or until the cars shall have passed each other. Cars approaching each other from opposite directions are forbidden to use what has become technically known as "cross signals"—i. e., answering one whistle with two, and answering two whistles with one. In all cases, and under all circumstances, a driver receiving either of the whistle signals provided in the rules which for any reason he deems injudicious to comply with, instead of answering it with a cross signal, must at once observe the provisions of this rule.

Rule 4.—Whenever a motor car is nearing a short bend or turn in the road, where, on account of the presence of buildings, trees, or from some other cause, a car approaching from the opposite direction cannot be seen for a distance of two hundred feet, the driver of such car, when he shall have arrived within one hundred feet of such bend or turn, shall give a signal by one long blast of the whistle, or five short and rapid blasts of the whistle, which signal shall be answered by a similar signal, given by the driver of any approaching car that may be within hearing. Should such signal be so answered by a car upon the farther side of such bend, then the usual signals for meeting and passing shall immediately be given and answered, but if the first alarm signal of such driver be not answered, he is to consider the road clear and govern himself accordingly. When cars are moved from a position of rest, and other cars are liable to pass from any direction toward them, they shall give the same signals as in the case of cars meeting at a bend; but immediately after getting in motion they shall be governed by Rule 1.

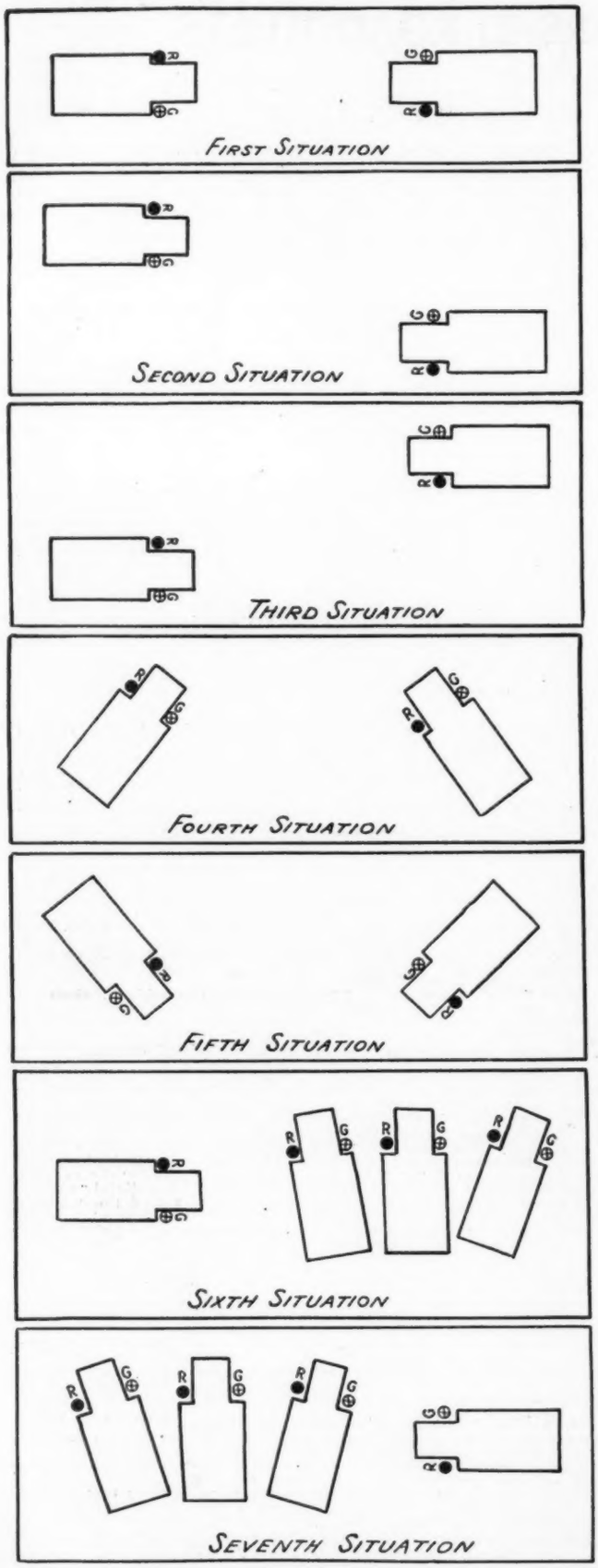
Rule 5.—The signals, by the blowing of the whistle, shall be given and answered by drivers, in compliance with these rules, not only when meeting "head and head," or nearly so, but at all times when passing or meeting at a distance within one hundred feet of each other, and whether passing to the starboard or port.

Rule 6.—When motor cars are running in the same direction, and the driver of a car which is behind shall desire to pass on the right hand or starboard side of the car ahead, he shall give one short blast of the whistle as a signal of such design and intention; or if he shall desire to pass on the left hand or port side of the car ahead, he shall give two short blasts of the whistle, as a signal of such desire and intention, and the driver of the car ahead shall answer by the same signals; or if he does not think it safe for the car behind to attempt to pass at that point, he shall immediately signify the same by giving several short and rapid blasts of the whistle, and under no circumstances shall the car behind attempt to pass the car ahead until such time as they have reached a point where it can be safely done, when said car ahead shall signify her willingness by blowing the proper signals. The car ahead shall in no case attempt to cross in front of or crowd upon the course of the passing car. Every automobile coming up with another car from any direction more than two points "abaft her beam"—i. e., in such a position in refereene to the car which she is overtaking that at night she would be unable to see either of that car's side lights—shall be deemed to be an overtaking car; and no subsequent alteration of the bearing between the two cars shall make the overtaking car a crossing car within the meaning of these rules, or relieve her of the duty of keeping clear of the overtaken car until she is finally passed and clear.

N. B.—The foregoing rules are to be complied with in all cases except when cars are moving in a crowded street; under such circumstances cars must be run and managed with great caution, sounding the whistle as may be necessary, to guard against collision or other accidents. In construing and obeying these rules due regard must be had to all dangers of driving, and to any special circumstances which may exist in any particular case rendering a departure from them necessary in order to avoid immediate danger.

Rule 7.—When cars are running in a fog or thick weather, it shall be the duty of the driver to cause three distinct blasts of the whistle to be sounded at intervals not exceeding one minute. An automobile hearing, apparently not more than four points from right ahead, the fog signal of another car, shall at once reduce her

CHART SHOWING SITUATIONS OF LIGHTED CARS.



R, indicates position of Red Light.
G, indicates position of Green Light.

speed to not more than six miles per hour, and proceed with great caution until the cars shall have passed each other.

Red and Green Signal Lights.

The lights mentioned in the following rules shall be carried in all weathers from sunset to sunrise. The word "visible" in these rules, when applied to lights, shall mean visible on a dark night with a clear atmosphere.

(A) On the starboard, or right-hand, side, a green light, so constructed as to throw an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points "abaft the beam" on the starboard side, and of such a character as to be visible at a distance of at least several hundred feet.

(B) On the port, or left-hand, side, a red light, so constructed as to throw an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points "abaft the beam" on the port side, and of such a character as to be visible at a distance of at least five hundred feet.

The said green and red lights shall be fitted with inboard screens projecting at least two feet forward of the light, so as to prevent these lights from being seen from any point other than that part of the horizon as specified in rules (A) and (B) relating to lights. This is important, for without the screens any plan of signal side-lights would be ineffectual as a means of indicating the direction of steering. This will be readily understood by a reference to the illustrations, where it will appear evident that in any situation in which two cars may approach each other in the dark the colored lights will instantly indicate to both the relative course of each; that is, each will know whether the other is approaching directly, or crossing her course either to starboard or port. This intimation, with the signals by whistle as provided, is all that is required to enable cars to pass each other in the darkest nights with almost equal safety as in broad day.

First Situation.—In this situation the two colored lights will be visible to the driver of each car, which will indicate their direct approach "head and head" toward each other. In this situation it is a standing rule that both shall pass to the right, each having previously given one blast of the whistle.

Second Situation.—In this situation the green light only will be visible to the driver of each car. They are, therefore, passing to starboard, which is rulable in this situation, each driver having previously signified his intention by two blasts of the whistle.

Third Situation.—In this situation the red light only will be visible to the driver of each car. Both cars are evidently passing to port, which is rulable in this situation, each driver having previously signified his intention by one blast of the whistle.

Fourth and Fifth Situations.—When cars are approaching each other in an oblique direction, as indicated by the diagrams of the fourth and fifth situations, so that a continuation of their courses would involve risk of collision, the vessel which has the other on her own starboard, or right hand, side shall keep out of the way of the other, and shall, if necessary to do so, slacken her speed, or stop; indicating her intention by either one or two blasts of the whistle, as circumstances may require, and in accordance with Rule 1 of the Drivers' Rules.

Sixth and Seventh Situations.—A car approaching another crossing her course at or nearly at right angles, as represented in the diagrams of the sixth and seventh situations, shall, if approaching the crossing car so near as to involve risk of collision, turn to the right, when seeing only the red light of the crossing car, and turn to the left if only the green light is in view; at the same time, slow, or stop, if necessary, each car to give the whistle signals as provided in Rule 1 of the Drivers' Rules, the crossing car to keep her course and speed.

INCORPORATES FOR $1,000,000.

Articles of incorporation were filed recently by the Korbusch Automobile Company, of St. Louis, Mo., which was formed sixteen months ago and exhibited an American Mors at the New York show last winter. The capital stock is $1,000,000, divided into 10,000 shares, of which George J. Korbusch owns all but three. The other stockholders are Harry F. Vogel, vice-president of the St. Louis Car Company; George A. H. Mills, general manager, and W. S. Miller, manager, of the automobile plant. The plant now employs 400 workmen in the construction of cars after the Mors patterns. Mr. Korbusch is president of the St. Louis Car Company, which is one of the largest builders of railroad and street cars in the country.

TIRES LAST ONLY 400 MILES IN SPAIN

SPAIN is a country which in great degree attracts many automobilists, though few venture over its rugged roads, possibly for the most part because they know little or nothing of the country, and information concerning it is not plentiful. An automobilist who has toured extensively over Europe gives facts and figures that are decidedly interesting. Answering as to the best way of travel in Spain, by train or automobile, he states that it is a question of individual judgment. If by train, one will not see "the local color." The cars are dirty, the service poor, and the trains slow. If by automobile, one will find Spain about the most expensive country of western Europe to tour in. A tire will last for about 400 miles, gasoline costs from 68 cents a gallon in the north to twice that in the south, with other supplies high.

As to the most desirable season in which to make the trip? The northern part of Spain consists of a series of plateaus having an elevation of about 2,000 feet. (Bungos is 2,790 feet and Madrid 2,140 feet above the sea.) As there are no trees on these plateaus to break the force of the wind, it is either very hot or very cold. That puts the summer and winter out of the question. In the spring the crops make the scenery more attractive than in the fall, when the lack of foliage makes everything seem barren.

There are agents at the Spanish custom house at Irun who will for a nominal fee (about $5) guarantee the custom charges. If one pays them they are returned, less a small charge for tires used, on leaving the country. There are, however, custom charges and road taxes to be paid when entering the various provinces, which are not returned. They are for small amounts, however.

The French licenses are all that are required, so there is no necessity to take out official Spanish papers for the automobile. The rules of the road require one to keep to the left, but the only things that seem to obey them are the trolley cars, everything else going where it wills. It is a good thing to have a siren or Gabriel horn on one's car, as the only wagons seen in the country are two-wheeled and drawn by five or six mules hitched tandem. The driver is invariably asleep and must be awakened.

In automobile supplies, anything in the ordinary, including tires, can be purchased in San Sebastian and Madrid. Gasoline and oil, since the King has taken up automobiling, can be found in nearly every fair-sized town, as storekeepers are all in hopes that some day he will visit them in his automobile.

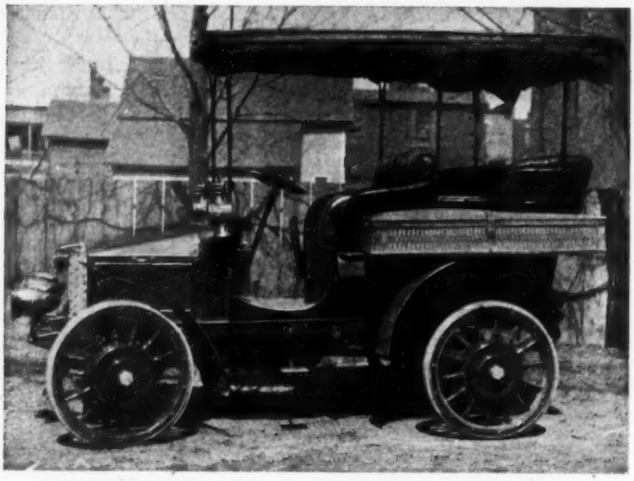
The roads in the north are macadam, but as they have not been resurfaced in many years, and the only work done on them consists of filling some of the holes with a little broken stone taken from the piles which line the sides of every road, and which are constantly being added to, the results on the tires can easily be imagined. Anyone making the trip should use old tires as an additional covering to the new ones, and carry as large a stock of extras as possible. South of Madrid the roads are bad beyond description. As one cannot get good carburation in high altitudes with the best of gasoline without adjusting the carbureter, and as poor gasoline makes it all the worse, no one should try to go south of Madrid, if that far, in less than a thirty-horsepower car.

The ordinance department publishes a map of Spain, but there are so many parts required for one day's run that they entail endless confusion. There is, however, an "Atlas De Obras Publicas De Espana," mounted on cloth and about forty by fifty inches in size, that gives about all the information required. Tiraide, of Paris, is going to publish maps covering Spain.

WHEN THE KING OF SPAIN TOURS ABOUT THE COUNTRY THE ROAD IS USUALLY WELL GUARDED.

AMERICAN PNEUMATIC WHEEL.

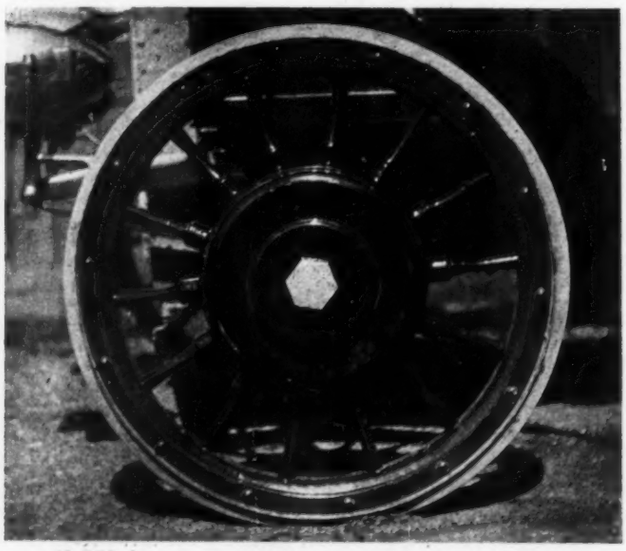
With the expressed intention of diminishing the liability to acident, and the depreciation incidental to the regular wear of the ordinary pneumatic tire, the American Pneumatic Wheel Company, of Lorain, Ohio, for the past two years has been developing a special design of automobile wheel, and has met with very encouraging results. The first set of wheels, built during the winter



PNEUMATIC WHEELS FITTED TO WHITE STEAM CAR.

of 1904 and 1905, were installed on a White car, and run about 500 miles. No trouble developed with either pneumatic tire or driving device, and subsequent changes made were for the purpose of reducing weight or improving appearance. This first set of wheels was equipped with solid rim tire of Firestone pattern. During the season of 1905 a set of wheels was finished with steel tires. These proved satisfactory as to resiliency, but were somewhat noisy on paved streets.

It will be noticed by the cross-section illustration that the pneumatic tire that is enclosed in the hub of the wheel is of small diameter and consequently inexpensive, while it has proven very durable in the experiments made. The wheel equipped with a



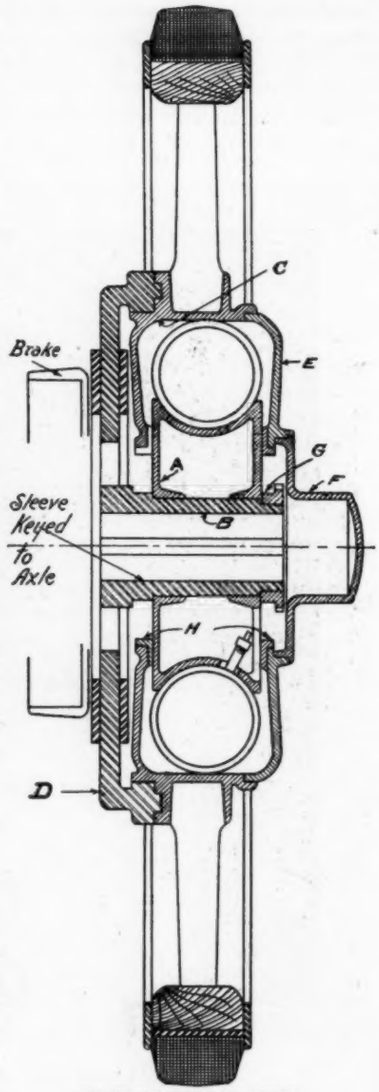
ENLARGED VIEW OF WHEEL SHOWING EXTERIOR.

solid rim tire and pneumatic cushion in the hub, the makers state, seems to run lighter than the ordinary pneumatic tire, and the reason attributed is that these wheels are a perfect circle and do not flatten on the road. The wheels are somewhat heavier than the ordinary type of rim pneumatic tire, but it is not believed that the additional weight will prove in any way objectionable.

The designers invite attention to the following points in the construction of the wheel which will probably assist the reader to a more complete understanding of the illustration presented.

The small spool or wheel *A*, which carries the pneumatic tire, is free to revolve in either direction. It turns freely upon the axle sleeve *B*, and is designed to protect the pneumatic tire from driving strains and friction. The load on the tire is distributed over practically one-half its circumference, since it rests in the circular shell, or main hub *C*, of the wheel. The argument is, that the tire can be run very soft, and is thus relieved of the strain due to high air-pressure. The makers have adopted a light single tube tire for this service, and on a standard five-passenger car the tires are pumped slightly harder than the ordinary bicycle tire. A quantity of dry graphite is placed within the shell or main hub for lubrication.

The main hub or shell *C* is a bronze casting having the tapered sockets for spokes cast on its periphery, and for the rear wheel is provided with lugs for attaching the driving device *D*. This casting is threaded to receive the aluminum side plate *E*, which forms the outer face of the hub. Into the side plate is screwed an aluminum cover plate *F*, which is provided with a hexagonal projection to facilitate removal for pumping up tires.

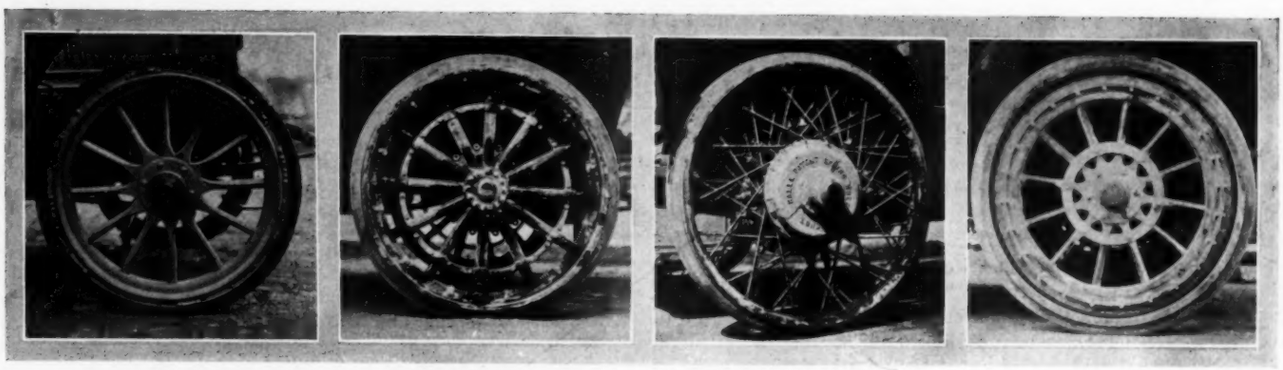


CROSS SECTIONAL VIEW.

A device is furnished with this wheel which, it is claimed, entirely eliminates tire troubles while on the road. In case the pneumatic tire should burst or otherwise prove defective, it is only necessary to remove the central cover plate *F*, also the nut *G* on end of sleeve *B*, and place a washer on the sleeve, against the wheel or spool *A*, which carries the pneumatic tire. This washer will center the wheel and remove the load entirely from the pneumatic tire, which may be repaired or replaced whenever convenient. In the meantime the wheel is running on the solid rim tire. Two of these washers are furnished with each set of wheels.

The circular faces *H*, which form a sliding contact with the small wheel or spool *A*, are high-grade bronze castings, and are so constructed that they may be easily removed. The device for transmitting the driving power from the rear axle to the circular shell or main hub *C* of the wheel is constructed of forged steel, case hardened, and all moving parts are fitted with roller bearings.

The entire business is in the hands of the American Pneumatic Wheel Company, incorporated under the laws of Ohio, with sufficient capital to take care of the manufacture and marketing of this product.

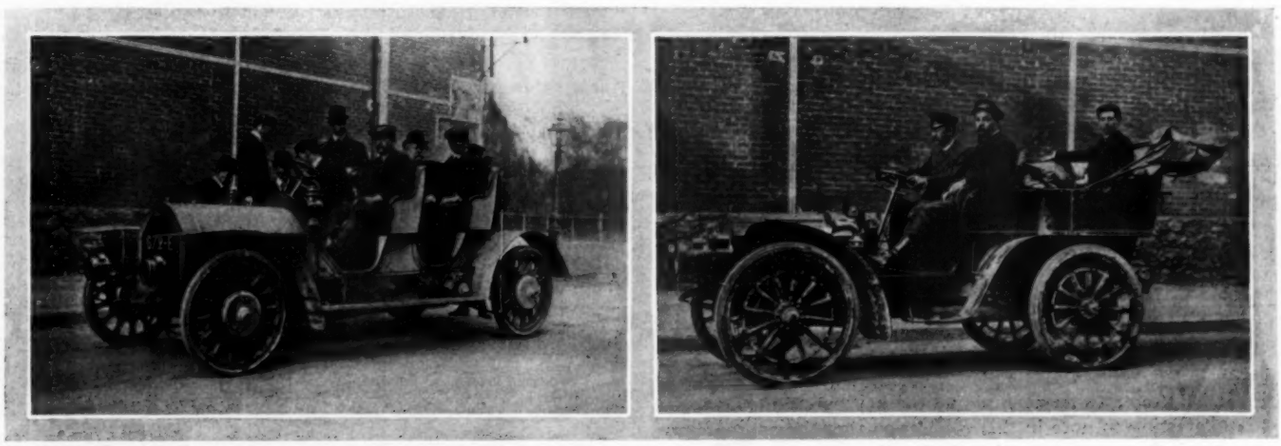


YBERTY-MERIGOUX. MONNIN-DAMIDOT. HALLE SPRING WHEEL. EDMOND LEVY.

RESILIENT WHEEL COMPETITION.

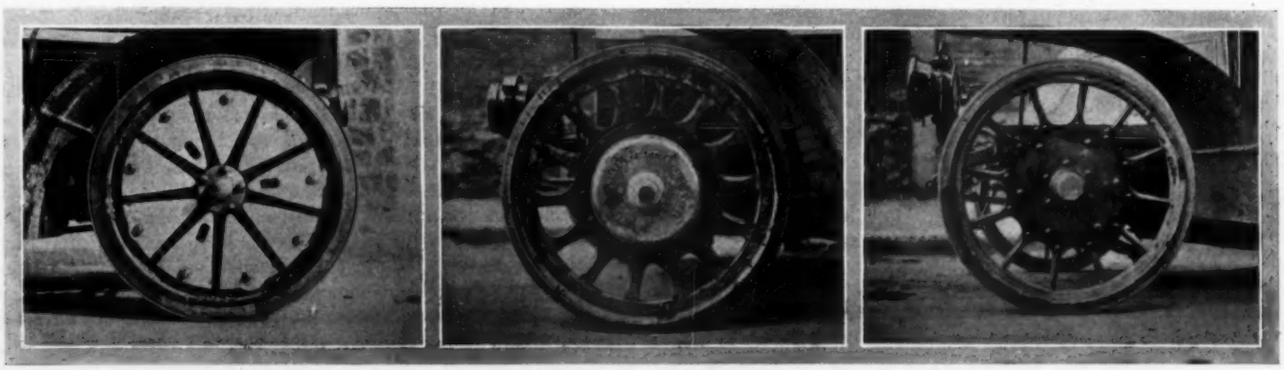
Results that may prove of considerable importance to the trade were manifested in the interesting road competition for resilient wheels, from Paris to Nice and back, inaugurated by *L'Auto*, the Parisian automobile daily paper. The last week in April was devoted to the contest, and eight or ten different types of wheels were represented, mounted on such well-known cars as the Mercedes, Panhard, Decauville, Gobron-Brillie, Renault, and others. In a general way all the wheels comported themselves satisfactorily, and the Garchey and Hallé types are credited with having developed splendid qualities. The speeds attained on cars of middle power were very good.

On the first day of the trial it rained hard and the roads were in bad condition, but average speeds of 45, 50 and 55 kilometers were attained. Cars fitted with Hallé wheels were the first to arrive at Dijon, and these wheels again showed up prominently the second day, from Dijon to Valence, where the systems were put to the severest possible test on account of the drains that cross the roads. Several of the wheels were put out of commission, but most of these troubles were caused by the cars themselves. Only four succeeded in reaching Valence within the stipulated time, these being the Hallé, Garchey, E. L. and Soleil. Several others, however, continued the journey unofficially, and on the return journey from Nice the Ducasble had got back in the placings and one of the Hallés had dropped out, while the Garchey, which had been leading up to Toulon, lost time through an accident.



GOBRON-BRILLIE CAR EQUIPPED WITH HALLE WHEELS. HOW THE DARRACQ LOOKS WITH MONNIN-DAMIDOT WHEELS.

From the advices so far received concerning the competition it is impossible to form a definite opinion as to the material results of the contest and its bearing on the future of that branch of the industry. There must have been great difficulty in classifying the wheels, when the regularity of their operation depends so materially upon the cars, and many competitors were unfortunate through no fault of their own.



THE GARCHEY WHEEL. HALLE ON GOBRON-BRILLIE. SOLEIL TYPE OF WHEEL.

CONGRESS HEARS MORE GOOD ROADS TALK

WASHINGTON, D. C., May 7.—The agricultural appropriation bill as it passed the House of Representatives carries with it an appropriation of $60,000 "to enable the Secretary of Agriculture to make inquiries in regard to the systems of road management throughout the United States; to furnish expert advice on road building; to make investigations in regard to the best methods of road making, and to investigate the chemical and physical character of road materials, etc." During the consideration of this item Representative Watkins made a short speech in which he referred to the matter in these words:

"The bill seeks to have appropriated for experiments looking to the betterment of our public highways $60,000. If it were for $60,000,000 for building good roads throughout the length and breadth of these United States, it would meet with my most hearty approval and earnest support. Nothing is more conducive to the material upbuilding of a country than good roads, and nothing more destructive to the financial welfare of the agricultural interests of the country than the miserable highways over which the agricultural products have to be transported. At some future time I shall present this question for consideration, and trust to be able to demonstrate that the advantages to be derived by all classes from the construction of good roads will more than compensate for all the expense incident thereto.

"At this time suffice it to say that the building of good roads will do more to bring the people together in fraternal relations, to promote their educational facilities and their religious zeal, to extend the trade and commerce of the country, and add more to their happiness than anything else. Good roads save money, time, labor, and annoyance. They are conducive to the social development of the people, enhance property values, and beget a spirit of contentment among the people, cementing them in a more compact union, and imbuing them with a spirit of patriotism, making better citizens in time of peace and producing out of them heroes in the time of war."

During the consideration of this item of the bill an attack was made on the office of Public Road Inquiries, but a number of members came to its defense and the appropriation was made. It is interesting to note in this connection that the appropriation this year is $10,000 greater than it was last year.

THE GROWING TIDE FOR GOOD ROADS.

From Greenville, O., comes news similar to what accrues from other parts of the country: "The Good Roads Club held a large and enthusiastic meeting. The object and purpose of the organization is to enlist the support and influence of representative citizens in an effort to procure better roads throughout the country of Darke and state of Ohio. Clubs have been formed throughout the state for the same purpose, and by co-operating legislation will be enacted which will systematically give to the people thoroughfares which travel and public facilities demand."

This is the way one man sizes up the situation: "No other civilized people would have tolerated the deplorable road conditions that we have in this country half so long as our people have tolerated them, and no other people would have complacently viewed the prodigal use of the public money for every other enterprise while the government they sustained went utterly to sleep as regards this momentous question of better roads."

Three hundred and ninety miles of macadam roads will be constructed in New York state during the next twelve months, the necessary measures agreed upon by the state authorities, the state grange, and the automobile clubs, for the improvement of the state highways under the provisions of the constitutional amendment having been adopted before the legislature adjourned last week. By these provisions the state is empowered to borrow $50,000,000 on bonds issued from time to time as the money is required. For the present year $5,000,000 may be used, each county to have a share for the mileage of unimproved roads.

Governor Mead of the state of Washington has gone on record as favoring convict work on state roads. Recently he received a communication from the Connecticut prison board, asking his co-operation in opposing the bill before congress, which proposes to abolish the interstate transportation of prison-made goods. Governor Mead has replied, saying that he favors the bill, and any measure that will restrict placing prison labor in competition with free labor. He adds that the state can find abundant employment for its convicts on the roads and public work of that character.

At a meeting of the executive committee of the Michigan Good Roads Association, at Lansing, it was decided to hold the next convention at Jackson the second Wednesday and Thursday of next January. It was decided that the president of the association should appoint an organizer, whose work should be to visit the different counties and interest the people on the good roads work. In a short speech to the members, President Todd stated that politics will play no part in the good roads program. He urged the formation of township associations so that when it becomes necessary for the state association to go to the legislature for assistance it will find good sentiment behind the movement all over the state.

OHIO ROAD COMMISSIONER'S REPORT.

The first annual report of the State Highway Department of Ohio, for the period from February 15 to November 15, 1905, has just been issued by Sam Huston, Commissioner. It shows that the first appropriation was made available on February 15, and, as the official year ended November 15, the work during this first nine months was mostly preliminary. Up to the latter date the testing laboratory for testing road materials at the Ohio State University was not yet ready for work. Neither had an Assistant Commissioner been appointed. All the county authorities had been circularized from one to four times in an effort to obtain statistics as to cost of construction and maintenance of the roads of the State, but the results were very unsatisfactory. The Commission issued four bulletins during the first year of its existence, and the Commissioner made useful investigations along several different lines, but the actual work of road improvement under the State bureau can hardly be said to have fairly begun yet. Under the law, County Commissioners were permitted to hold back applications for State aid until the last day of December. Commissioner Huston thinks that the legal percentage of 25 per cent. given by the State toward cost of construction is insufficient inducement to the counties, as that allowance will not meet the extra expense of good, permanent construction.

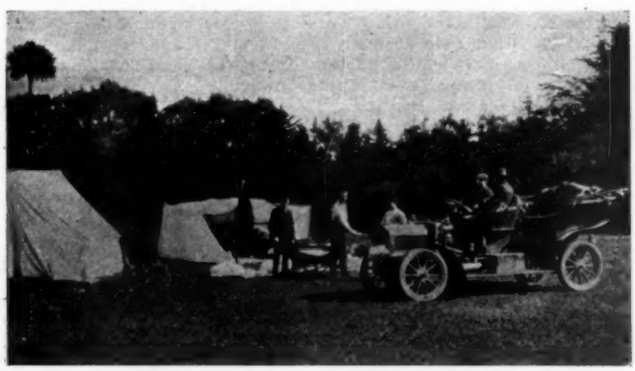
The Morristown (N. J.) "bumps" are proving very effective in checking the speed of the many automobiles that pass through that city on the pleasant Sundays with which the Metropolitan district is being blessed this spring. It has become a popular form of amusement for the residents to congregate wherever these bumps are located to see the fun. The bumps rise five inches above the level of the road surface and are built of trap rock and clay. No unfair advantage is taken of the automobilists, as signs warning travelers of the presence of the bumps are placed at each end of the town. Despite contemptuous smiles and the quick slowing-down of cars, the bumps sometimes throw the rear wheels of a car off the ground, and goggles, hats, sidecombs, and other loose articles fly about in all directions, while loose spares and tools rattle merrily.

FROM LOS ANGELES TO THE CITY OF DESPAIR

By FREDERIC PABST.

SAN FRANCISCO, Cal., May 5.—It was with Capt. H. D. Ryus, Bert Dingley, and Walter White that I made the run in a White steamer from Los Angeles to stricken San Francisco, a distance of 500 miles. It was a run never to be forgotten, over the most beautiful mountain passes in the world and down into valleys where nature has outdone herself. A party of four men rushing through the country at top speed to reach the scenes of horror in a destroyed city would hardly be in the mood to enthuse over the glories of nature, but such picturesque scenery is seen nowhere but in California. Walter White was in our party. He has toured Germany, Switzerland, England, Ireland, and almost every other picturesque land. Our car had been plugging its way over mountains all night long.

Starting from Los Angeles at 7 in the evening, we had climbed Cahuenga Pass, topped Calabassas Grade, and boomed along to the Canejo. The night was dark, and it was early morning before a small slice of the moon peeped over the mountain tops just a couple of short hours before Old Sol chased the shy moonbeams to their day retreat, but the lights picked out the way over the mountain grades down into the valley. It must have been a queer sight for the farmer boy who chanced to look up into those high mountains and see two fiery eyes winding their way down at the pace we were going.



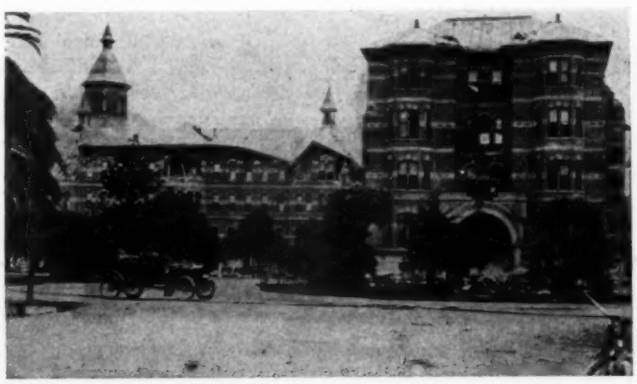
WALTER WHITE AND HIS SOLDIER COMPANION ON DUTY.

The car took the El Rio sand like a bird, and on we rushed to Ventura. Only a brief stop was made here, and the faithful car struck out for the hard climb over Casitas. There were four streams to ford to the Ventura river, but not once did the car hesitate and the climb was on. It was too dark to enjoy the beauties of the Casitas, but morning was to dawn on an even more beautiful valley, that which stretches out beyond the Gaviota Pass. This is not treason to Southern California, for this beautiful valley is but forty miles beyond Santa Barbara, and is part of our Southland. In those awful hills beyond Santa Barbara our Prest-o-Lite lamps gave out, and we were left with two weak coaloil lamps. But we were out to reach San Francisco, and Captain Ryus picked the way over the dangerous roads at a fair clip. The Gabiota Pass was climbed in the early morning, and at the top, as our eyes beheld the beautiful valley below, the sun swept over it, emphasizing ths beauties. Captain Ryus brought the car to a stop as he beheld the beautiful scene, and we were startled by a shout from White. He was standing in the machine cheering, cheering for nature and her work. The young Easterner's love for the beautiful was touched. He was hardly conscious of that shout; it came from the soul. It is no wonder autoists who once make the trip between San Francisco and Los Angeles never tire of it. It is one of the grandest auto tours in the world. The blase individual who is always disappointed and has begun to believe no sight can affect him, should take this journey. Not only one valley, but there are half a dozen, each one as beautiful as the others. For a hundred miles the road winds through a natural park, beautiful and grand.

RUINED ENTRANCE TO STANFORD UNIVERSITY.

It was the automobile that saved the day in San Francisco. With houses tottering, flames sweeping away the business district, the street cars out of commission, and the people in a panic, it was the automobile which solved the problem of rapid transit and brought order out of chaos. The telephone and the telegraph were useless. It was a journey of hours from one part of the stricken city to the other for a horse. There must be some way to organize the forces which were to calm the city, protect the panic-stricken, and convey physicians and nurses to the injured. In that hour of hopelessness and need came the automobile. The injured were carried to the hospitals with the utmost speed, aid was brought to the injured, and the tonneau of the big cars carried away many a dead body.

The men who came to the front with the necessary genius for organization found the automobile an absolute necessity. Almost from the hour of the first shock the authorities took charge of the automobiles. With the first excitement over, it was recognized that much would depend upon the number of automobiles available, and every effort was made to save as many machines as possible. As a result the loss in automobiles was not large. With the cars saved, the next thing was the gasoline with which to run them, and throughout the city officers and soldiers hurried, taking possession of all gasoline. For the first few days before more fuel could be shipped in, gasoline was dealt out sparingly. Tires were also guarded by the regulars, as the rubber tubes soon wore away after hours of rushing over fallen bricks.



RUINS OF THE STATE INSTITUTION AT SAN JOSE.

The maker of the best machine on earth would never have consented to his car being put to such a test as every machine in running order was forced to undergo in San Francisco. Never before in the history of automobiles were cars asked to do what the automobiles of San Francisco were forced to do in the stricken city.

Captain H. D. Ryus, of Los Angeles, rolled into San Francisco after having completed a 500-mile journey with but few stops. An officer took charge of the machine.

"That car has run 500 miles during the last two days," said Ryus. "Don't you think a little adjustment would make an improvement?"

"No time now for adjustment," said the officer.. "This car is needed and it has to run." And that White steamer responded nobly, running hundreds of miles over the brick-covered streets.

In those stirring times the usual cautious driver became a regular daredevil. I had rides which for hair-raising escapes could not be equaled. To rush down Broadway at midday going 25 miles an hour would be a hammock ride compared with some of the dashes I took down Market street, over fallen debris and through lanes of panic-stricken people, rushing to get out of San Francisco and away from the scenes of desolation and misery.

Were it possible to name the drivers of all these machines there would be a long list of heroes. Many a man drove his car three and four days without a minute's rest. C. A. Hawkins, the White agent on the Coast, did not close his eyes for sixty hours. Walter White, the young millionaire from the home of the White car, made the long trip from Los Angeles to San Francisco and then jumped in and drove a car for hours and hours without a rest. Hawkins and White were two of the heroes, and there were many more.

The repair men should not be forgotten. Many cars were operated by inexperienced hands, and many a machine gave out momentarily under the strain. The repair men worked night and day. As quick as a car let down it was repaired and sent on its errands of mercy and protection once more.

No more thorough demonstration of the usefulness of the automobile could be asked. No more convincing argument that the auto is a necessity and not a luxury could be made.

WHAT THE BIG VEHICLES ACCOMPLISHED.

From the San Francisco agents of the Knox Automobile Company comes the story of what the Knox did in time of need:

"The United States Government confiscated our garage, which was miraculously saved, the fire burning around us on all sides, but we were neither affected seriously by earthquake or fire. We had in stock livery machines of our own to the number of a score, and these were impressed into service. The work which they accomplished was enormous. The 2,500-ton wagon, usually used in carrying the United States mail, was of inestimable service in caring for the dead, dying, and wounded. As soon as the president of the Mobile Carriage Company arrived at our place of business after the earthquake, he immediately offered to the city all our vehicles, and the general utility of the Knox corps demonstrated the great worth of automobile transportation."

The San Francisco agents of the Packard Motor Car Company were instrumental in forming the "State Courier Service," which has been conducted in the stricken city under the supervision of the Governor. In its letter the Pacific Motor Car Company sends this information:

"We have demonstrated the practicability of the Packard truck to the satisfaction, we think, of everybody in San Francisco. You cannot and never will be able to realize what has happened here of late, and I wish it was in my power to illustrate to you the good work that the truck did early in the game. We used it to haul out the injured, as we could drive it up close to the fire where horses were not able to stand the heat. Then we put it in the Red Cross service, and it is now in the state courier service. We also have a number of Packard touring cars in the service."

THE AUTOMOBILE CALENDER.

AMERICAN.

Shows.

May 14-19—New Orleans (La.) Automobile and Motor Show.
May 24-26—Open Air Show, Empire City Track, New York Trade Association.

Tours.

May 30...—Endurance Run, Salt Lake City to Ogden, Utah. Bert Fuller, Manager, Salt Lake City.
June 6...—Orphans' Day, Second Annual Celebration by the New York Motor Club.
June 16-18—Three-Day Tour, Bay State Automobile Association, Boston to Rye Beach, N. H.
June 18-23—Second Annual Economy Test, New York Motor Club.
June 21-26—Second Annual Tour, Albany Automobile Club, Albany to Boston and Return.
July 14....—Annual A. A. A. Tour, Chicago to Bretton Woods, N. H. Rules for the Glidden Trophy operative from Buffalo.
Sept.....—Endurance Run, Denver to Colorado Springs, Centennial Celebration Discovery of Pike's Peak.

Race Meets and Hill Climbs.

May.....—Richmond, Ind., 10-mile Obstacle Road Race, Wayne County Automobile Club.
May 10...—Wilkes-Barre (Pa.) Centennial Jubilee Hill Climb.
May 10-12—Macon, Georgia, Race Meet, Macon Automobile Club.
May.....—Michigan Hill Climb, at Indianapolis, Ind. (exact date to be announced).
May 24...—Dead Horse Hill Climb, Leicester, Mass., Worcester Automobile Club, (Chester I. Campbell, Manager, 5 Park Sq., Boston).
May 30...—Boston Annual Meet of the Bay State Automobile Association, Readville Track.
May 30...—Baltimore (Md.) Race Meet, Maryland Motor Exhibition Association.
Sept. 22...—American Elimination Trials for Vanderbilt Cup Race (Long Island Course probable).
Sept.....—Colorado Springs. Two-Day Meet. Centennial Celebration Discovery of Pike's Peak.
Oct. 6...—Vanderbilt Cup Race, American Automobile Association.

FOREIGN.

Shows.

Oct. 5-14—Leipzig (Germany) Exhibition, Krystall Palast.
Nov. 1...—New Zealand International Exhibition opens at Christchurch.
Nov. 1-16—Berlin (Germany) Automobile Exhibition.
Nov. 15-24—London, Olympia Motor Show.
Nov. 23-Dec. 1—London, Stanley Show, Agricultural Hall.

Tours.

May 12-13—International Light Touring Car Competition, Vienna to Gratz and back. Austrian Automobile Club.
May 13-14—Tour de France. Motorcycles and voiturettes.
May 15-16—Le Coupé d'Or and International Automobile Congress, at Milan, Italy.
June 5-13—Herkomer Cup Touring and Speed Trials, Munich, Bavaria.
June 11-16—Land's End to John O'Groat's. Auto Cycle Club of Great Britain.
June 13-16—Scottish Reliability Trials.
July 29-Aug. 15—Circuit Européen, 3,000 miles, Paris, Milan, Vienna, Berlin, Cologne, Paris.

Race Meets and Hill Climbs.

May 27...—Motor Cycle Club of France, Championships.
June 26-27—Le Grand Prix, Sarthe Circuit, France.
July 8...—International Cup Race for Motorcycles, Cesky Club Motocyclistu of Austria.
July 15...—Suze-Mont Cenis Hill Climb (Italy). Automobile Club of Turin.
Aug. 1-15—Circuit des Ardennes (Belgium).
Aug. 15-16—Ventoux (France) Automobile Meeting.
Aug. 14-19—Ostend (Belgium) Meet.
Aug. 23...—Semmering Hill Climb.
Aug. 27-Sept. 2—Brescia (Italy) Automobile Meeting.
Sept. 27...—Tourist Trophy Race, Isle of Man, Auto Club of Great Britain.
Oct. 7...—Chateau Thierry (France) Hill Climb.
Oct. 28...—Gaillon (France) Hill Climb.

THINGS GOING ON AMONG THE CLUBS

New England Interested in Dead Horse Hill Climb.

WORCESTER, MASS., May 7.—Entry blanks for the Dead Horse hill climbing contest on May 24, under the auspices of the Worcester Automobile Club, were issued last week. There will be twenty-two events in all, the first of which is for the Amateur championship of Worcester county, open to all stock cars, owner or regular chauffeur to drive. This rule applies to all the other amateur events, which are twelve in number. The second and third events are for steam vehicles, and the balance for gasoline cars of the various sizes and weights, with the exception of the last event, which is open to all makes of cars.

Dead Horse Hill, the scene of the contest, is located on Stafford street, about three miles from the Worcester city hall, on what was originally the old Boston and Hartford turnpike. The mile course commences at the works of the Standard Plunger Elevator Company, near Jamesville Station, and runs southwesterly across the city limits into the town of Leicester, about three-fourths of a mile to the east of the hill. Contestants will report to the clerk of the course before one o'clock on the day of the climb, who will be stationed at the corner of Ludlow and Stafford streets, with a red flag. All cars will be given a running start of 200 feet on a down grade.

The following are the principal officials chosen for the hill climb: Referee, Lewis R. Speare, president Bay State Automobile Association, Boston. Judges, Elliott C. Lee, president Massachusetts State Automobile Association, Boston; H. E. Fletcher, president Lowell Automobile Club; President Haynes, Springfield Automobile Club; William H. Chase, Wachusett Automobile Club, and the presidents of the Brockton and Providence Clubs. Timers, F. L. Murdock, A. H. Inman, G. B. Cutting, C. L. Chamberlain, J. F. Lancaster. Clerk of the course, Secretary Frederick L. Frost. Starter, Alfred Thomas. Marshal, President John P. Coughlin.

Last year big crowds of automobilists lined the course, and if present indications are reliable, the vicinity of the climb this year will witness an increase in the number who will witness the contest. The hill is just one mile in length and varies in grade from 8.3 to 12 per cent., so that the machines that cover the distance will prove their worth for New England roads. All entries must be filed with Chester I. Campbell, manager, 5 Park Square, Boston, Mass.

Annual committee appointments for the Worcester Automobile Club, just announced, are as follows:

Executive Committee for Dead Horse Hill climb—President John P. Coughlin, chairman; C. L. Chamberlain, Daniel P. Gay, G. D. Webb, and George E. Stimpson. Commissioner W. E. Hassan, George D. Webb, and W. C. Watson figure as a special committee to prepare the road for the climb.

Membership—D. P. Gay, G. E. Stimpson, G. E. Ryan.

Laws and Ordinances—D. F. Gay, F. C. Smith, Jr., J. P. Coughlin.

Highways—W. E. Hassam, George Maguire, A. W. McGill.

Runs and Tours—M. P. Whittall, Hon. F. A. Harrington, D. C. Sargent.

William N. Stark has been appointed chairman of the House Committee, and he will appoint his confrères.

The Automobile Club of the Princetonians.

PRINCETON, N. J., May 7.—Sixteen cars belonging to members of the Princeton University Automobile Club had an official run to the Pennsylvania-Princeton baseball game in Philadelphia last Saturday. Seventy Tigers were carried in the cars. The result of the ball game made the return trip particularly enjoyable to the Princetonians.

Milwaukee Automobile Club Will Have Quarters.

MILWAUKEE, WIS., May 7.—At a meeting of the Milwaukee Automobile Club held at the Hotel Pfister plans for the selection of club headquarters were favorably acted upon. The advisability of either securing rooms or building a small clubhouse has been discussed pro and con for the past two years, but at no time has the disposition to take definite action been so strong as the present season, and the impetus given the project at the last meeting indicates that it will be carried to completion. It is proposed to obtain quarters similar to those of the Cleveland Automobile Club, which has its home in the Hollenden Hotel. A committee was appointed to make arrangements with one of the downtown hotels for a suite of rooms to be fitted up with billiard room, restaurant, reading room and any other convenience which the club might require. It is the intention of the club to secure permanent quarters where members may meet and where visiting automobilists may be entertained. Material of interest to autoists, including maps of drives in Wisconsin and throughout the country, will be one of the features of the reading room.

Another question which was taken up for discussion was the arrangement for a race meet to be held at the State Fair Park, entries for the various events being restricted to local machines and drivers. The program will include handicap races, and prizes will be hung up to stimulate interest. If the meet proves a success a series of similar events will be held during the season.

A committee of ten was appointed to take charge of the proposed Orphans' Day outing.

Canada Will Entertain American Tourists.

MONTREAL, QUE., May 7.—The Automobile Club of Canada will use its surplus funds to give prizes to landowners in the outlying municipalities for the best-kept sections of public road. The decision was reached at the annual meeting of the club held this week. To interest automobile owners in the club, the membership fee will be reduced from $25 to $10.

On the afternoon of May 12 the members of the club will have as their guests the members of the City Council, and heads of the various departments, and representatives of the press.

In the May 19 run the route will be by way of St. Annes and Cartierville, circling the upper portion of Montreal Island.

The officers of the club are now in communication with the A. A. A. Touring Committee, for while here the American tourists of course will be the guests of the local club.

The election of officers for the ensuing year resulted as follows: President, Duncan McDonald; vice-president, Dr. A. Mignault; secretary-treasurer, George A. McNamee; directors, F. H. Anson, Eugene Tarte, William Carruthers, A. J. Dawes, Clarence F. Smith and U. H. Dandurand; honorary members, Hon. L. J. Forget, Justice Robidoux, Hon. A. Turgeon and H. Beaugrand.

Annual Hill Climb at Cincinnati, May 19.

CINCINNATI, O.—The Automobile Club of Cincinnati has designated Saturday, May 19, as the date for the annual hill-climbing contest of the Queen City automobilists. A permit has been obtained from the chief of police for the use of the Paddock Hill road for that day, and the superintendent of street cleaning has promised to have the course in good condition for the big annual event. President Duttenhofer of the club is sending out blanks for entries and will announce the list of officers in a few days. It is expected this year's contest will exceed any former event in interest and attendance.

Cincinnati's streets and avenues, as well as the outlying roads, were probably never in as bad condition as at present. It is immaterial as to whose fault it is as long as the fact remains.

The superintendent of street cleaning and repairs says he has no money with which to work, and the reform administration does not seem able to meet the emergency. In the meantime all persons suffer from dirty streets and thousands of holes in the roadways, and of course the automobilists, who in another month will be paying double license, are getting the worst of it.

The Automobile Club of Cincinnati will remain a member of the American Automobile Association, and will prove an energetic member of the Ohio State Association of the national body.

Minneapolitans Will Indulge in a Hill Climb.

MINNEAPOLIS, MINN., May 7.—On St. Anthony's parkway, May 15, the annual hill climb of the Minneapolis Automobile Club will be held. The parkway ascends the bluff along the river bank in such a way that the spectators are able to witness the entire contest. The cars will be classified according to price, and all professionals will be barred. No stripped cars will be allowed, but all must enter in full touring rig. The contest is also limited to members of the club, and it is expected that between fifty and seventy-five entrants will participate. Considerable rivalry exists between many owners, and many close finishes are promised.

Asa Paine, president of the Florida East Coast Automobile Association, returned to his home in Minneapolis last week, after having spent the winter in Florida.

At the last meeting of the directors of the Minneapolis Automobile Club, the lease for the clubrooms at the Plaza Hotel for one year was signed. The directors also authorized the house committee to secure estimates for the cost of properly furnishing and equipping a meeting-room, billiard-room and buffet, and submit them to the directors. The sum allowed for the purpose is between $1,500 and $2,000. About a dozen new members were admitted.

Three Pennsylvania Clubs Join State Federation.

PITTSBURGH, PA., May 7.—Three clubs identified themselves with the Pennsylvania Motor Federation during the past week, the list including the Automobile Club of Blair county, with headquarters at Altoona, a recently formed organization with thirty odd members, of which Dr. O. H. Shaffer is president and R. H. Fay, secretary; the Automobile Club of Central Pennsylvania, with headquarters at Milton, having a membership of over fifty, F. R. Slifer, secretary; and the Automobile Association of Center county, located at Bellefonte, of which Robt. F. Hunter is secretary. Eleven clubs are now affiliated with the Federation, which is taking an active interest in the project for improving the Philadelphia-Pittsburgh road.

New Jersey Booms Despite the New Law.

TRENTON, N. J., April 30.—Frank B. Moore, a prominent member of the Mercer County Automobile Club, has purchased a White touring car and many new machines are being received by Trentonians daily despite the new law. The road improvements in New Jersey are now in full progress, and the coming season is a very promising one for automobilists.

It will, perhaps, be of interest to tourists to know that the old Trenton House, which for ten years has had the popular Fred S. Katzenbach as proprietor, has changed hands, and that pleasing host will no more be seen by automobilists. Mr. Katzenbach is well known throughout the state and his popularity among auto tourists is extensive.

CLUB DOINGS IN GENERAL.

NEW YORK.—The members of the Automobile Club of Crescent Lodge, F. A. M., No. 402, of this city, made the annual banquet run to Blossom Heath Inn, Larchmont, last week, where the spread was laid. The officers who had charge of the outing and who were present are: President, Carl H. Page; vice-president, Alden J. McMurtrie; secretary, Roy G. Howell; treasurer, Howard M. Davis; marshal, James J. McKenna; directors, Conrad M. Pitcher, Leon Rubay, J. Caster Williams, Ralph T. Olcutt, Richard L. Gibbs and Harry Unwin.

BROOKLYN.—Secretary Pierson, of the Long Island Automobile Club, announces the date set for Brooklyn's automobile parade as Saturday afternoon, May 19. Dr. William P. Richardson is chairman of the parade committee, and invites New York automobilists to take part in the procession, which will probably start from the Plaza, Brooklyn, and go through Prospect Park and down the Boulevard to Coney Island. A large passenger automobile will precede the procession with a band.

CHICAGO.—The Chicago Automobile Club has moved into its new temporary quarters, suite 60, Fisher building, corner Dearborn and Van Buren streets, owing to the expiration of the lease on the property it occupied at 243 Michigan avenue. The temporary quarters, which consist of a reception room, a directors' room and the secretary's office, will be used until the completion of the new clubhouse on Plymouth place.

MEMPHIS, TENN.—Automobilists of this city are actively engaged in the preliminary work of organizing a club. A committee, consisting of W. C. Johnson, G. T. Broadnax, and Joseph Stewart, has the matter in charge, and a permanent organization will be effected under the Memphis Automobile Club.

PACIFIC COAST BEACH COURSE.

LOS ANGELES, CAL., May 3.—California is to enter the beach racing game. A course, 16 miles in length, along the shore of the Pacific, has been laid out, and every effort is to be made next year to bring west the big cars which have been making the Florida beaches the center of the winter racing game during the past few years. El Pizmo Beach is the name of the new candidate for racing honors. It has a first-class hotel and miles and miles of hard sand. The course is 211 miles from Los Angeles and 275 miles from San Francisco.

The first tryout occurred last week. Two Pope-Toledos, belonging to Messrs. Lingley and Hazard; a Frayer-Miller, owned by Harry Howes; Thomas Wadsworth's Tourist, and a Maxwell Speedster driven by Clarence Smith left here on invitation of the beach people, and although several bad places were encountered as a result of recent landslides, the cars went through without mishap. Hazard's Pope-Toledo, with the full touring equipment, went a mile in 1:09, and Lingley's car reeled off a mile in 1:11. Those present at the tryout speak enthusiastically of the course and say it is possible to hold some great races there. If the co-operation of the California clubs can be obtained, something in the way of a meet may be pulled off this coming fall.

The Los Angeles-San Francisco endurance run scheduled for June has been called off on account of the recent earthquake.

TO MAKE GASOLINE ELECTRIC MERCEDES.

A contract has been concluded between the firms of Cannstatt Daimler and Jacob Lohner, of Vienna, to erect a factory at Vienna for the manufacture of Mercedes electromobiles on the Lohner-Porsche system. An output of 1,200 vehicles, intended principally for foreign trade, is expected in the first year of operation.

There are now in operation in Germany between 5,000 and 6,000 alcohol engines, and it is estimated that when alcohol designed for such purposes in the United States is free from Government tax a much larger number will be used here. Internal combustion engines using alcohol as a fuel are coming into general use on farms for running all kinds of farm machinery. It is used also in running light machinery in workshops.

ITALY'S NEWEST AUTOMOBILE.

Italian cars have been coming into prominence rapidly of late, and have shown their equality with the world's best productions in many contests in the last two years. The Zust car, built in Milan and Intra by the Fabrica Italiana di Automobili, is being brought to the attention of Americans through its importation and sale in the United States by R. Bertelli & Company, 124 East Nineteenth street, New York City. The first general public inspection of this make was afforded last January in the A. C. A. show in the Sixty-ninth Regiment Armory in New York, where a chassis of the 40-50-horsepower touring car was exhibited. A number of cars have been ordered since then, and at the present time one or two are arriving by steamer every week or so. Some of those who have driven the car assert that in ease of control, smooth running and speed it ranks with the foremost European productions.

A distinctive feature of the construction is the frame, which is pressed into form in one piece from a single sheet of steel. The cross frame members are integral with the bottom flanges of the side channels, and after the cross and side channels have been flanged up and over, the top flanges on both are connected by rivets, suitable projections being formed on them for this purpose. One of the cross members is dropped to support the front end of the gearcase, while the others are straight. Webs are formed in the angles at the junctions of the cross members with the side frames, and in certain other places pieces of pressed steel are riveted to the frame to give increased stiffness. A pressed steel dustpan extends from the cross member under the radiator at the front to the member that supports the transmission gearcase, entirely protecting the engine and operating mechanism from below. The hood is close fitting over the engine, and instead of a fan behind the radiator, a draft through the radiator and the engine space is induced by means of fan blades cast in the flywheel.

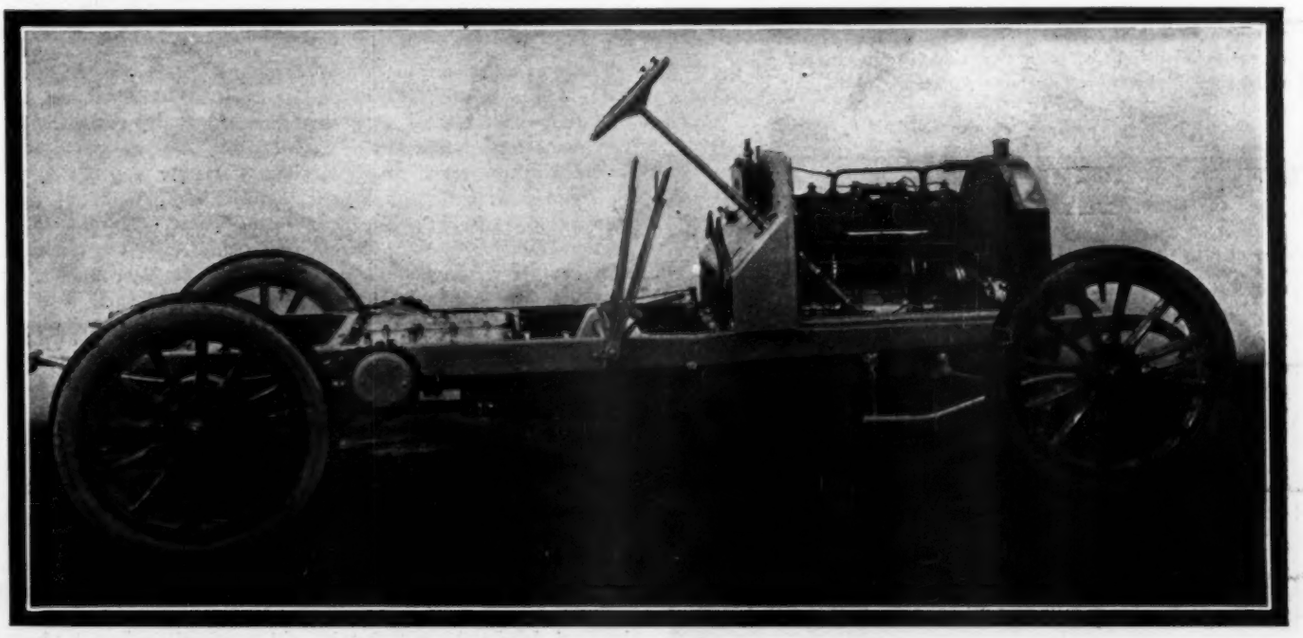
The engine, as shown in the photograph, has the cylinders cast in pairs, with integral water jackets. Inlet and exhaust valves are on the same and left side of the engine, mechanically operated by a single camshaft. The push rod guides are held in place by yokes, rendering them easily removable. In the 40-50-horsepower car the bore and stroke are each 5 inches. The pistons which, like the cylinders, are long, have convex heads corresponding to the dome shape of the cylinder heads. The water jackets are thin and extend less than half way down the length of the cylinders. Strength and lightness are combined in the crankshaft and connecting rods by hand forging them from nickel steel, the shaft having the flywheel flange formed integral with it and being supported on three long bronze bearings, and the connecting rods being rectangular in cross section and having the weight distributed to accomplish the most good. The crank pins are hollow.

All valves, which are arranged side by side in pairs, are made very light from one piece of special nickel steel, and are interchangeable. They are closed by large and long valve springs. A single cast iron exhaust pipe extends rearwardly along the sides of the valve chambers and receives the discharges from all. Just below it is the Siamese inlet pipe from the carbureter. Heated air is drawn into the carbureter through a special pipe with an extension passing around the exhaust pipe.

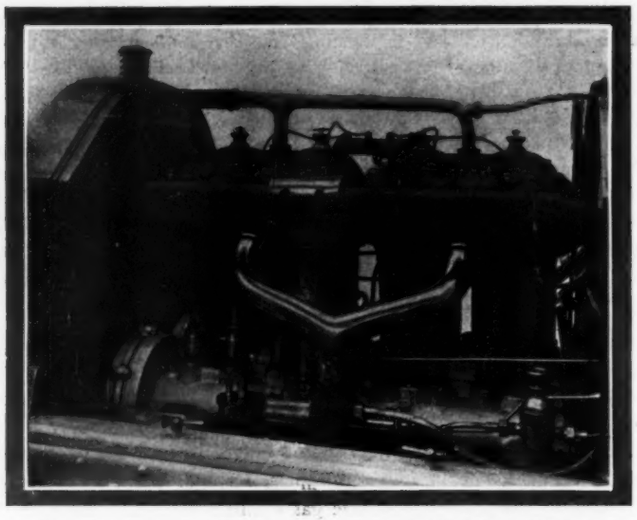
The carbureter is of the float-feed type, with sliding piston throttle, having an extension with opening of variable width that forms the auxiliary inlet and operates in conjunction with the piston throttle to give the widest opening when the main throttle is wide open. The gas mixture is delivered by the inlet pipes to bifurcated ports or connections between each pair of cylinders. Gasoline is fed to the carbureter under pressure from a thirty-gallon tank at the rear, the pressure being obtained from the exhaust.

Ignition is by means of a low-tension Simms-Borsch magneto and make-and-break mechanism on the right side of the engine, as seen clearly in one of the photographs. The magneto is direct driven by spur gear from the crankshaft, the gears being encased in aluminum boxes. The actuating rods for the hammers are operated by a camshaft in the crankcase, the cams having diagonal faces so that the spark can be advanced or retarded by shifting the shaft forward or back in its bearings. One wire from the magneto is grounded on the crankcase and another carries the current to a bus bar at the top of the engine, whence it is distributed to the four cylinders. On this bar are four switch buttons, by means of which any cylinder can be cut out for testing.

Lubrication is by a force-feed oiler driven by belt from the rear end of the ignition camshaft. Leads convey the oil to the separate cylinders far down on their sides and to the main bearings, whence the surplus flows into the crankcase to serve for splash. The lower half of the crankcase is divided into four compartments, each provided with a drain cock.



CHASSIS OF ZUST 40-50 HORSEPOWER TOURING CAR.

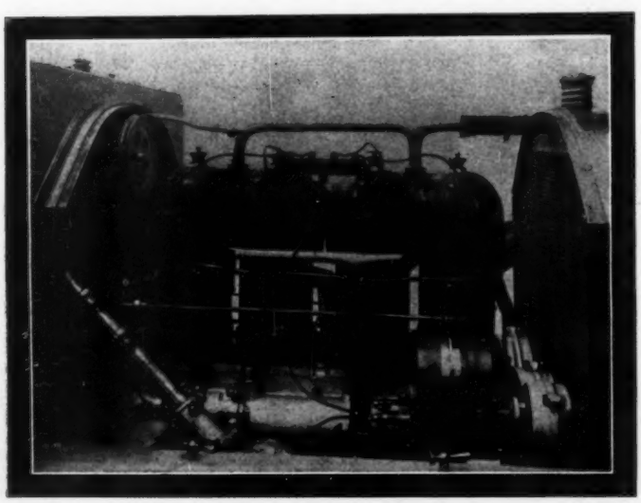


INLET AND EXHAUST VALVES ON SAME SIDE OF ZUST MOTOR.

Cooling water from the base of the cellular radiator is forced through the jackets by a pump gear driven from the ignition camshaft. The connections are made flexible by means of sections of rubber hose, and wrenching of the cooler is prevented by supporting it only at the base.

The clutch is of the multiple-disk type, operating in the hub of the flywheel. The disks are of steel and have friction rings of thin steel that can be replaced when worn without removing the main plates. A removable piece in the shaft reaching from the clutch to the change-speed gearshaft permits the taking out of the clutch without disturbing the engine or transmission.

The transmission is of the selective type, but is peculiar in that each of the two longitudinal shafts of the gearbox has a bevel pinion at the rear end, and these mesh with bevel gears keyed on sleeves extending from the differential hubs, the gears being next to the sides of the gearcase. Four forward speeds are provided. A bevel gear differential is located in the middle of the countershaft inside the gearbox and between the two bevel driving gears. A constricting band brake is fitted on a large drum on the countershaft just to the left of the gearbox. Drive to the road wheels is by two 1 1-2-inch pitch roller chains. Internal expanding brakes on the drive wheels are all enclosed to protect them from dirt and water. Front and rear axles are of I-section forged steel. Wheelbase of the 40-50-horsepower car is 112 inches. Control is by two side levers operating gears and emergency brake, two long push forward pedals acting on clutch and transmission brake and throttle and spark levers.



RIGHT SIDE OF ZUST ENGINE, SHOWING IGNITION SYSTEM.

A. A. A. WANTS SIGN BOARDS.

One of the crying needs of automobile touring is the erection of sign boards on all main highways, and this matter is one which just now is receiving the marked attention of the American Automobile Association. This fact was brought forward at the regular monthly meeting for May, held last Thursday at the Automobile Club of America clubrooms on Fifth avenue, New York City. A uniform sign board will be adopted and suggested to A. A. A. clubs, which generally are much interested in the plan. In New York state, Ohio, and Massachusetts, many sign boards are being placed, and the tourists of the coming summer will profit accordingly.

President John Farson presided at the session, the other directors present including S. L. Haynes, Automobile Club of Springfield; F. H. Elliott, Syracuse Automobile Club; D. H. Morris, Automobile Club of America; Windsor T. White, Cleveland Automoblie Club; G. E. Farrington, Automobile Club of New Jersey; A. R. Pardington, Long Island Automobile Club; G. A. Post, North Jersey Automobile Club; A. G. Batchelder, New York Motor Club; and Secretary S. S. Gorham, Chicago Automobile Club.

The newly appointed law committee reported that it was engaged in securing copies of the recent automobile laws in all states, and subsequently a general measure combining the best features of all the bills would be drafted in time for the legislative sessions of next winter.

Hereafter individuals joining the A. A. A. will receive an association button, the retail price of which is $1.

It was announced that the official touring book of the association would be issued within the next fortnight. It is to be known as "The Automobile Official A. A. A. Blue Book."

In future the monthly meeting will take place on Tuesday, the constitution having been amended in this regard.

A large number of individual applications for membership were favorably voted upon.

RULES AND ROUTES OF THE A. A. A. TOUR.

The two sub-committees of the touring committee of the American Automobile Association will report with promptness, if the wishes of Chairman Paul Deming are observed. The trio entrusted with the rules, consisting of L. E. Myers, F. B. Hower, and Secretary S. S. Gorham, have a difficult task in hand, but the offering of several cups in addition to the Glidden trophy may make their labors somewhat easier. It is probable that the large and small touring cars will be divided in some manner.

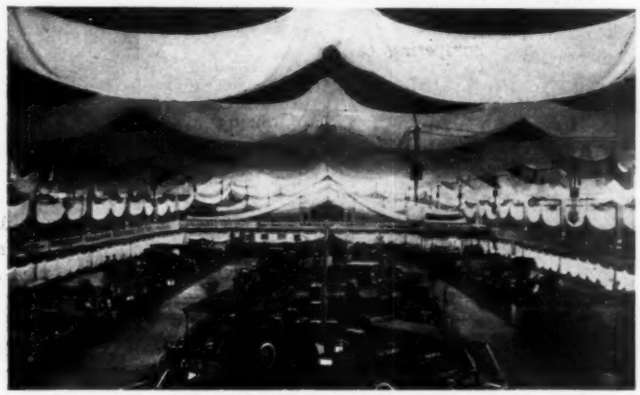
The committee on the route, consisting of Augustus Post, Judge James B. Dill, and F. B. Hower, is an excellent one, as both Judge Dill and Mr. Post have toured in Maine and Canada. The roads from Burlington, Vt., to Montreal, thence to Quebec, followed by the return to the United States through Maine to the conclusion at Bretton Woods in the White Mountains, are pronounced by Judge Dill to be uniformly good. After reaching Bretton Woods the tour practically disbands, and the tourists, with another contingent that will journey from New York and Boston to the White Mountains, will witness and participate in the climb of the Crawford Notch, which will take the place of the "Climb to the Clouds" up Mount Washington.

PERCY PIERCE SAILS FOR EUROPE.

Percy P. Pierce, of the Automobile Club of Buffalo, Saturday last sailed for Europe on the *Patricia*. He will go direct to Paris, and then to Germany to participate in the Herkomer cup race to be held during June. Subsequently the 1905 winner of the Glidden trophy will compete in the European circuit, the 3,000-mile tour that will cover half of Europe. The American will drive a regular Pierce Arrow stock touring car, and while he has no visions of first prize he anticipates making a good showing, despite the fact that he will be pitted against the best cars in Europe.

MONTREAL'S SHOW A SUCCESS.

MONTREAL, CANADA, May 7.—The International Automobile and Motor Show, which occupied the week of April 21 to 28 in the Arena Rink, was a success from start to finish, and the joint managers, D. H. Lewis, of Buffalo, and R. M. Jaffray, of Montreal, were the recipients of congratulations from all sides. Fully 20,000 people saw the different exhibits, and from the time the show opened till its close the Arena was packed with lovers of automobiles. Throughout the week business was noticeable, and lots of it. A great many cars were sold to people who had no



GENERAL VIEW OF THE SUCCESSFUL MONTREAL SHOW.

idea of purchasing one before visiting the show. The automobiles and accessories displayed were among the best productions of Europe, America, and Canada, and Montreal people appreciated the fact. The promoters were so well pleased with the result of the show that they secured an option on the Arena for 1907 and intend making it an annual exhibition.

The Canadian Motor Company, Montreal, showed the Cadillac, Oldsmobile, Darracq, and Knox truck; the Easton Automobile Company, Montreal, the Pope-Toledo, Russell, and Waverley Electric; Wilson & Co., Montreal, the Franklin, Buick, and Baker Electric; Henry Morgan & Co., Montreal, the Maxwell, Argyll, and Decauville; British and French Motor Car Company, Ltd., Toronto, the Panhard, De Dion-Bouton, Daimler, Argyll, Swift, and Minerva; Automobile Import Company, Montreal, Beeston-Humbers. Specimens of Dunlop, Fisk, Continental, Kelly, Springfield, and Samson leather tires were shown, also a fine line of English, French, and American accessories, and automobile clothing.

BOSTON'S MAYOR AN AUTOMOBILIST.

BOSTON, May 7.—Mayor John F. Fitzgerald, originator of the "Bigger, Busier, Better, Boston" campaign slogan, has become an automobilist and hereafter will conduct his strenuous administration of the city from the seat of a big six-cylinder, 50-60 horsepower National touring car, as well as from his office at City hall. The mayor's machine was delivered to him this week by J. M. Linscott, the local agent, and the mayor immediately had it registered, receiving from the Highway Commissioners the number 13,129. He did not take out an operator's license, and, for the present, at least, will rely on the services of a professional chauffeur. The mayor became acquainted with automobiling last fall during his whirlwind tour for the Democratic nomination, and later in the pre-election campaign. During the last few days just before the primaries, and again just before the election, he almost lived in the automobile, leaving it not even for meals and sleep. One night he covered every one of the twenty-five wards in the city, making a speech in each.

Besides using the car for traveling between his home in Dorchester and City hall, Mr. Fitzgerald will make use of it in his trips about the city, for which he is famous. With the automobile he will be able to visit the various departments and pieces of work under way before the superintendents and foremen can be forewarned of his coming. His habit of dropping down unexpectedly in places where city work was in progress has caused some consternation among the city employees.

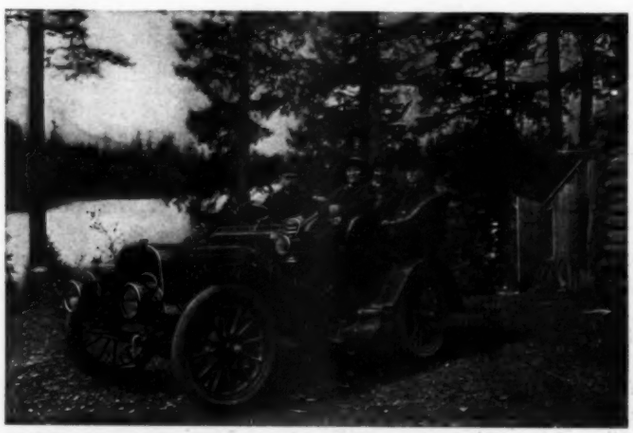
It is said that an episode which occurred during the winter had something to do with the mayor's determination to have an automobile. He had planned to take a vacation in Hot Springs, Virginia, and had engaged accommodations on the limited New York train. He was to meet Mrs. Fitzgerald at the station, she to come in a carriage from their home. The time for the train to start arrived, but no Mrs. Fitzgerald. The train was held two or three minutes, and then left without the mayor. An accommodation train was due to leave three minutes later, and this was held five minutes, during which Mrs. Fitzgerald put in an appearance. Her excuse for the delay was that the horse could not make quick enough time to the station.

FOURNIER ORDERS AN AMERICAN CAR.

The Rainier Company of New York is elated over the receipt of a telegram from Henry Fournier, ordering immediate shipment of a 35-horsepower Rainier car. The old adage, "carrying coals to Newcastle," becomes applicable to the situation in this instance, and marks a distinct epoch in the history of American automobile manufacture, when high-powered touring cars are being sent to France from America instead of the reverse condition, which has been hitherto prevalent. The selection of the Rainier as worthy of representation in his Paris salesrooms by M. Fournier is a source of much satisfaction to its maker.

HOW THE INDIAN FOUND THE SPOT.

TACOMA, WASH., May 5.—By using an automobile it was possible for a committee from the Pierce County Pioneers to locate the exact spot upon which Captain Charles Wilkes celebrated July 4, 1841. This was the first patriotic celebration on the Pacific Coast, and the first arranged west of the Mississippi river, and took place on the north shore of Lake Sequalitchew, but a few hundred feet from American lake, and which was named by Captain Wilkes on the same day. The committee learned of the existence of Slugimas Koquilton, an aged Yakima Indian, about 85, and that he had been present. The Indian was located, and corroborated the story. Being aged and infirm, the auto was the



HOW THE OLD INDIAN WITH A RAMBLER FOUND THE SPOT.

only practical method of taking him out to the lake, which is about fifteen miles from here, and on the prairie road to Mount Tacoma. He located the exact spot.

The accompanying photograph is interesting in that it was taken on this historic spot, and containing as it does the only person living who participated in the affair. The old Indian occupies the seat with W. W. Wing of the American Automobile Company. In the rear seat are William Lane, an old Indian fighter, and W. H. Gilstrap, curator of the Ferry Museum.

The AUTOMOBILE

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H. M. SWETLAND, President

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L. R. SMITH P. M. RICHARDS B. FRANK BARNETT
W. I. RALPH, 1034 Old South Building, Boston, Mass.
C. H. GURNETT, H. H. GILL, 625 Monadnock Block, Chicago, Ill.

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Surprises Marked the Two-Gallon Test.

The two-gallon efficiency contest held by the Automobile Club of America furnished several surprises. The number of entries was greater than anticipated, the early promise of a beautiful day was unexpectedly broken by a tremendous downpour which made the going exceedingly difficult in the clay stretches of road, and the distances covered by a considerable number of the competing cars were surprisingly high. The American car has come out with high honors, and of the distinctively domestic type at that—the air-cooled car. Unless any final rearrangement of figures should change the result, the first place is held by the Franklin runabout, with a distance of 87 miles to its credit, and second place by the Frayer-Miller touring car, which with five passengers on board covered nearly 48 miles. Third place went to France, a medium-powered Darracq touring car covering 40+ miles with five passengers. Another surprise was the fine performance of the huge Mack observation wagon, which, with nineteen persons on board, covered a distance of between 17 and 18 miles. It was the only representative of the commercial vehicle type in the contest and its performance showed a low operative fuel cost from a transportation standpoint.

A pleasing feature of the contest was the presence of many amateurs, who entered and drove their own cars. In spite of a tremendous downpour in the afternoon, and the long delays between the times of stoppage of many cars and the arrival of the relief car, the contestants showed an undiminished interest in the contest and complaints were few. No doubt the experience gained in this contest will be availed of to better arrangements in the future. Some needed changes would appear to be: An earlier closing of the entry list; an earlier start on the day of the contest; the assignment of observers to their cars before the old fuel supply is emptied out and the new measured quantity taken on, so that all the actions of the contestants that have a bearing on the final results may be under official observation; the employment of a greater number of relief committee cars to determine the location of cars after stopping and avoid unreasonable delays of contestants on the road.

Probably with the best of intentions the committee underestimated its task, and though it was originally announced that the award would be made on the day of the race, this was found impracticable, owing chiefly to the unexpectedly long distances covered by competing cars.

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An Existing Need That Will Be Supplied.

Touring is the core of automobiling, and to make this feature thoroughly enjoyable one must know where to go. A long-felt want—not so very long after all, when one realizes the short life that the automobile has lived—has been the need of an up-to-date tour book for the use of the army of automobilists who desire to see more of their own country, either for purposes of pleasure or business. It has been an intricate task to bring forth "The Automobile Official A. A. A. Blue Book," but the publication appealed so strongly to the American Automobile Association that the national organization gave its official indorsement to the comprehensive effort of the Class Journal Company. All available sources of information were sought in its preparation, and it is believed that it will prove of satisfying value to the touring automobilist. Of course, future editions will show decided improvement, and the scope of the book will be enlarged as the demands for it accrue. One must not only know where roads are, but he must also be informed as to the best route in the maze of highways. One also desires to know about hotels where he can comfortably repose, and learn concerning garages where patronage receives the right kind of attention. All these things are answered in "The Automobile Official A. A. A. Blue Book," which will come forth from the press in the next fortnight.

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The Economy of Automobile Cars.

Developments which indicate the widespread use on railroads of automobile cars are many, companies being incorporated in various parts of the country. The secretary of a concern recently organized in New York City sums up the reasons for the automobile railroad car in this manner: "Automobile cars can be operated for less than 25 per cent. of the cost of locomotive trains, making possible a frequency of service nearly four times that given under existing conditions without increasing expenditure. They can be run at high rates of speed, can be stopped at cross-roads, and handled similarly in every respect to a trolley car." It will be through the medium of the automobile railroad car that the railroad companies will be able to compete against the numerous automobile bus lines that some day will speed over specially built public highways.

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The Utility of the Modern Automobile.

A Wisconsin farmer wrote to an automobile agent in regard to the purchase of a machine wherein he stated a part of his wants in this manner: "I would like to know if you think it feasible and how I could use the automobile to grind grain, run saw, and husk and shred corn with it." The reply being of a reassuring sort, the agent informing the rural genius that the work could be done by an automobile, a sale was effected. The agent, Alfred W. Norris by name, told where one of the motors in his plant had broken down, and the difficulty was met by jacking up one of the largest automobiles in the place. A tire was removed from a rear wheel and the rim wound with rope to secure a flat surface on which a belt would work. By this means all machinery in the plant was operated for a week.

OUTLOOK GOOD FOR FREE ALCOHOL.

WASHINGTON, D. C., May 7.—The outlook for the Payne Free Alcohol bill in the Senate is somewhat brighter, several important things having transpired recently to clear the situation. Not the least of these was the concluding paragraph of the President's message to Congress, transmitting Commissioner Garfield's report on the Standard Oil investigation, when he said:

"Though not bearing upon the question of railroad rates, there are two measures, consideration of which is imperatively suggested by the submission of this report. The Standard Oil Company has, largely by unfair and unlawful methods, crushed out home competition. It is highly desirable that an element of competition should be introduced by the passage of some such law as that which has already passed the House, putting alcohol used in the arts and industries upon the free list.

It was learned at the Capitol that members of the House are planning to bring political pressure to bear upon Senators in behalf of the free alcohol measure. Anxious and alarmed over the apparent indisposition of the Senate to take any action with reference to the bill, the Republican congressional campaign committee is to be called into the struggle. Representatives are in many cases very anxious about the prospect of retaining their seats at the coming election, and express the belief that the best argument they can put forward in their own behalf is the fact that they had helped in securing the passage of the alcohol bill.

The Senate Finance Committee, which has the Alcohol bill in charge, gave a hearing Saturday to Commissioner of Internal Revenue Yerkes, who discussed the denatured alcohol bill at some length. He explained the rules and regulations of other countries which provide for free alcohol, and assured the committee that after the spirits have been treated with denaturizing materials it would be infinitely more expensive and easier to detect a restoration for drinking purposes than to conduct an illicit still. Additional testimony on this point was given by C. A. Compton, a government chemist. He explained the difficulty in removing the denaturizing element, and said that little fear need be entertained on the score that free alcohol may be used in the preparation of intoxicating liquors. The committee will next hear the wood alcohol people.

PARIS AUTOMOBILE STRIKE NOW GENERAL.

NEW YORK, May 8.—The *Herald's* European edition publishes the following: The strike in the automobile constructing and coach building industries may now be considered general in Paris and the district. A few firms having special contracts with their workmen still continue to turn out machines, but they are so few that they may be said hardly to affect the general situation.

Viewed broadly, the automobile production is at a standstill, and people waiting for machines must make up their minds to some delay. Some authorities maintain that the strike is bound to terminate in a few days and others that a month must elapse before all is in swing again.

The position at the C. G. V. works, as explained by one of the directors, may be taken as an example of the position of affairs right through. On May 2 the men left work after completing eight hours, and on the following morning, on arriving, they discovered a notice placarded on the doors by order of the management dismissing the entire staff. On May 5 the men came to ask for their wages, but the management refused to pay and requested the men to sue for them.

The result is that until an agreement is reached as to this payment, apart from any fresh conditions which may be arrived at, it is improbable that the staff will be taken on again.

The Shah of Persia has ordered several pairs of motor-skates, a command which has set the ministerial world atremble, as the government officials will most likely have to undergo tortures with them to amuse their ruler.

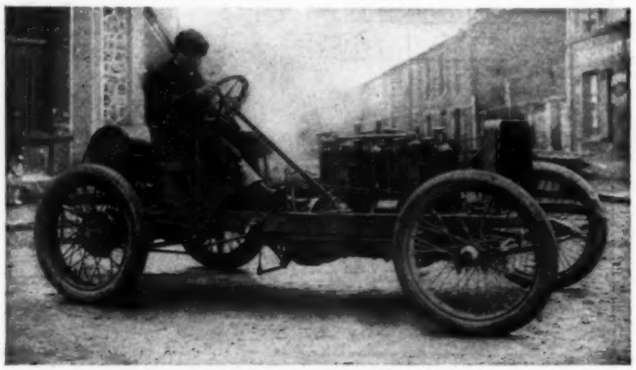
THE GRAND PRIX OF FRANCE.

PARIS, May 1.—For exactly a month the Sporting Commission of the Automobile Club of France has not had a single entry to register for its great race next June. It began to be asked what was the matter with the constructors, that they delayed engaging their machines, which everybody knew were being built specially for the great event. Four days before the official closing, the Renault team was registered, and the same day the Gobron, which had been looked upon as a doubtful starter, sent in the $1,000 registration fee, together with the name of Rigolly as driver. The next day the first foreign team was received—three Fiat cars, to be driven by Lancia, Nazzaro, and another yet to be chosen. Vulpès, a French firm, having won glory in touring contests, next came along with its first big racer, and the public is now waiting for the final scramble of the two closing days, after which double fees will have to be paid.

On the closing of the American mail the list stood as follows:

Darracq—Hemery, Wagner, Hanriot, drivers.
Panhard & Levassors—Heath, Terte, Tart.
Brasiers—Baras, Lebrun, Barillier.
Lorraine Dietrichs—Gabriel, Rougier, Duray.
Gobron—Rigolly.
Renaults—Sisz, Edmond, Richez.
Fiats—Lancia, Nazzaro, third driver unnamed.
Vulpès—Barriaux.

The Sporting Commission has issued a notice that the Sarthe circuit is now closed to all racing machines, and will not be



THE 1906 RACING DARRACQ—HEMERY ACTUALLY SMILES.

opened again until a few days before the race. This step has been rendered necessary in order to facilitate the work of preparing the course, and tarring and oiling the surface. It will in no way inconvenience the native drivers, all of whom have thoroughly studied the course on either this year's or last year's racers. Foreign drivers will have to be content to make their acquaintance with the circuit on touring machines, practising with the racers during the last few days.

CAGNO AND AN ITALA WIN TARGA TROPHY.

PALERMO, May 4.—Cagno, driving an Itala, to-day was the winner of the race for the Targa trophy, donated by Signor Florio. The 450 kilometers (about 281 1-4 miles) were covered in nine hours and twenty-two minutes. Four thousand soldiers kept the course clear and more than one hundred thousand persons witnessed the race.

GERMAN ARMY'S NEW ARMORED CAR.

Amid the preservation of great secrecy tests have been made with a new armored motor car in Germany, the Prussian war office being principally concerned therein. The car, the design of which is kept secret, was built in the Mercedes works, near Cannstatt; it will carry several guns.

MOTOR AND ACCESSORY MAKERS.

A total of 135 active members, reinforced by a flourishing treasury, was represented at the meeting of the Board of Directors of the Motor and Accessory Manufacturers, held at the Lafayette Hotel, Buffalo, May 1. The following firms were elected to membership: Cook Railway Appliance Co., Kalamazoo, Mich.; M. Strauss & Sons, Newark, N. J.; Noera Mfg. Co., Waterbury, Conn.; Syracuse Aluminum & Bronze Co., Syracuse, N. Y.; Consolidated Rubber Tire Co., New York.

President D. J. Post reported that the Permanent Show Conference Committee was already working on arrangements for coming exhibitions with a view to promoting the interests of the association. It was decided at the meeting to take a mail vote of the entire membership on the place of holding the next semi-annual meeting, the choice to be between Niagara Falls, Thousand Islands, Atlantic City, Manhattan Beach, and Saratoga. Strong evidence of increasing interest was shown at the meeting.

ONE OF WELLMAN'S MOTOR TRACTORS.

WASHINGTON, D. C., May 7.—A great deal of interest has been manifested in Walter Wellman's forthcoming search for the North Pole. An Indian motorcycle, built on original lines, which

AMERICAN MOTOR SLED FOR WELLMAN POLAR EXPEDITION.

will be a part of his equipment, was rebuilt in the shops of Chas. E. Miller & Bro., Washington agents for Indian motorcycles and Ford automobiles, and great things are expected of it. A great deal of study has been given the idea by George W. Wells, who has charge of Mr. Miller's machine shop.

As will be seen from the illustration, the machine takes the form of a motorcycle sled. The runners in front are constructed of steel tubing of small size and well braced. The framework of the original machine remains intact, in addition to which there has been added a pair of hickory runners. By means of a steel brace these runners can be elevated from the ground when the snow becomes too deep for the rear wheel to revolve. A steel-studded tire is used and the rim is reinforced by a rim of galvanized iron, with 2-inch corrugations every 4 inches. The motor is 2 1-4 horsepower, of the regular Indian type. The weight of the machine is about 200 pounds, and unless all calculations fail it will play a very important part in this latest Arctic expedition.

The machine has been shipped to the base of supplies Wellman has established in Norway.

OHIO'S LAW MAY BE INVALID.

COLUMBUS, O., May 7.—Ohio's new automobile law is no good, according to an opinion of Attorney-General Wade Hampton Ellis to Hon. Lewis C. Laylin, secretary of state, who is charged with its enforcement. He advises that no attempt be made to enforce the law until it shall have been held to be valid by the courts. A suit to test its constitutionality will be brought. He is of the belief that its provisions violate the State constitution, and were it not lame in this respect, he declares other numerous infirmities would be sufficient to render it inoperative. It is so loosely drawn that the State is left without means of enforcing the penalty against anyone violating its several provisions. The intention was to follow the New York law in drafting the measure, and sections of the former were inserted in the wrong place, added to which were ambiguities which practically nullify the law. So Ohio may have to worry along until the meeting of the Legislature two years hence without a State license law for automobiles.

The trouble starts in section 2, providing: "Every person hereafter acquiring a motor vehicle, shall, for each such vehicle, file in the office of the secretary of state a statement of his name and address," etc., which, interpreted literally, means that only those purchasing automobiles after the law is in effect are subject to it. All who buy before that time are not caught by the law, according to the faulty wording. Whether the courts would construe the law to mean this is, of course, a question. Another clause seems to say that a man who does not register his machine may run it without a license or payment for a year. Then it will be time to pay again, and if he doesn't he can't be touched for another year, and so on to infinity. The provision imposing a fee of $3 for every additional 10 horsepower over 30 horsepower is inserted in such a bungling way as to indicate that the secretary of state, in forwarding record books of auto licenses issued to the county auditors, shall send $3 with the same. The secretary of state is also required to pay the cost of putting the law into operation out of a fund which does not exist, and if it did, one that has not been appropriated to his use.

SCORCHERS TAKE UNFAIR ADVANTAGE.

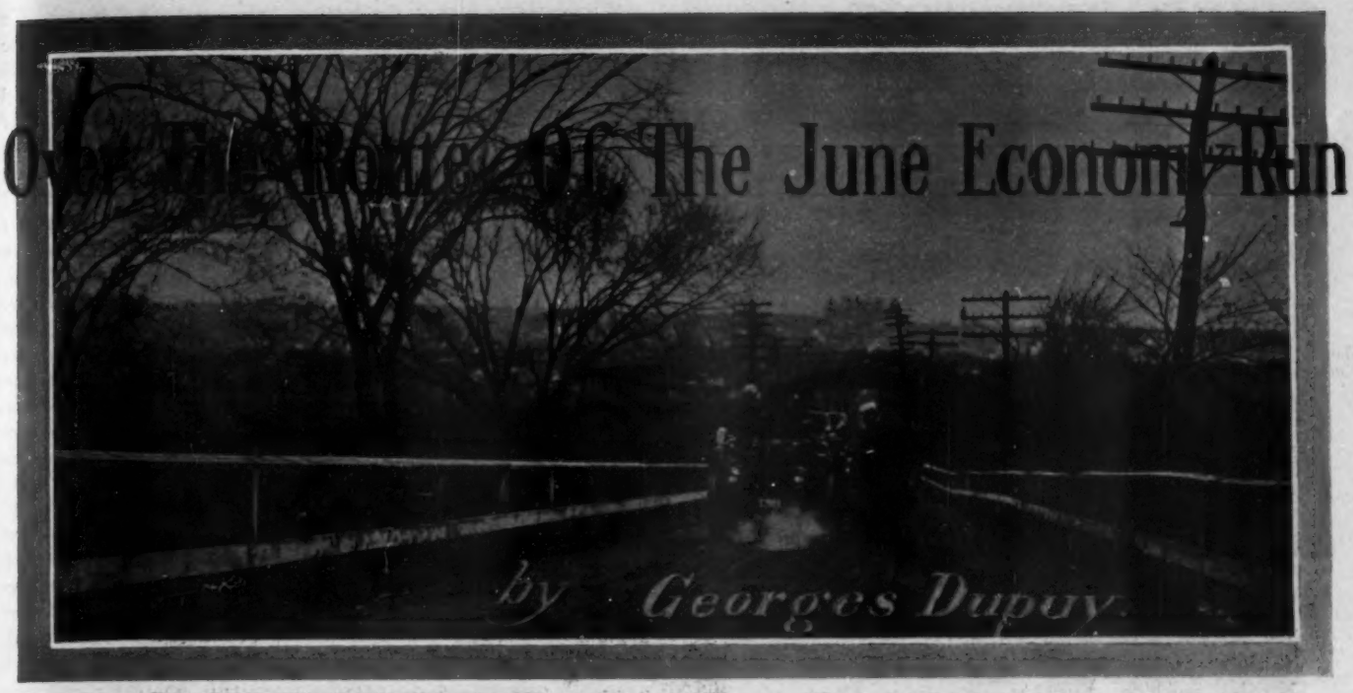
CLEVELAND, May 7.—Automobilists have been giving the Cleveland police lots of trouble of late. Immediately after the passage of the Sawicki State automobile law, which supersedes all local ordinances, the Cleveland city authorities discontinued the issuing of license tags and issued orders that new operators should not be molested by the police if they did not carry number tags. It appears that a few would-be racers have taken advantage of this leniency and have taken their numbers off their cars, and are playing havoc with the speed ordinances, immune from arrest from the fact that the police have no means of knowing whether they are old or new operators. The other day a park policeman, who had been abused by a particularly obnoxious scorcher, retaliated by firing his revolver after the flying machine in the hope of hitting a tire, thus causing the driver to stop. It may be that the policeman was only trying to scare the driver and did not fire directly at him, but the incident has caused a storm of protest from automobilists and the public in general.

The Cleveland Automobile Club took up the matter, and Secretary Goddard called on the chief of police and in the name of the organization demanded that orders be issued prohibiting such extreme measures. He pledged the word of the club that its members would take all measures to discourage scorching, and if possible would disclose the names of offenders to the police. He also said that if any of the members were guilty of the offense, the organization would take especial interest in seeing them prosecuted.

An irrepressible theatrical press agent has conceived the idea of holding an automobile show in the lobby of a Chicago theatre on the occasion of the presentation of a play which has for its central feature an automobile race.

Over The Route Of The June Economy Run

by Georges Dupuy.

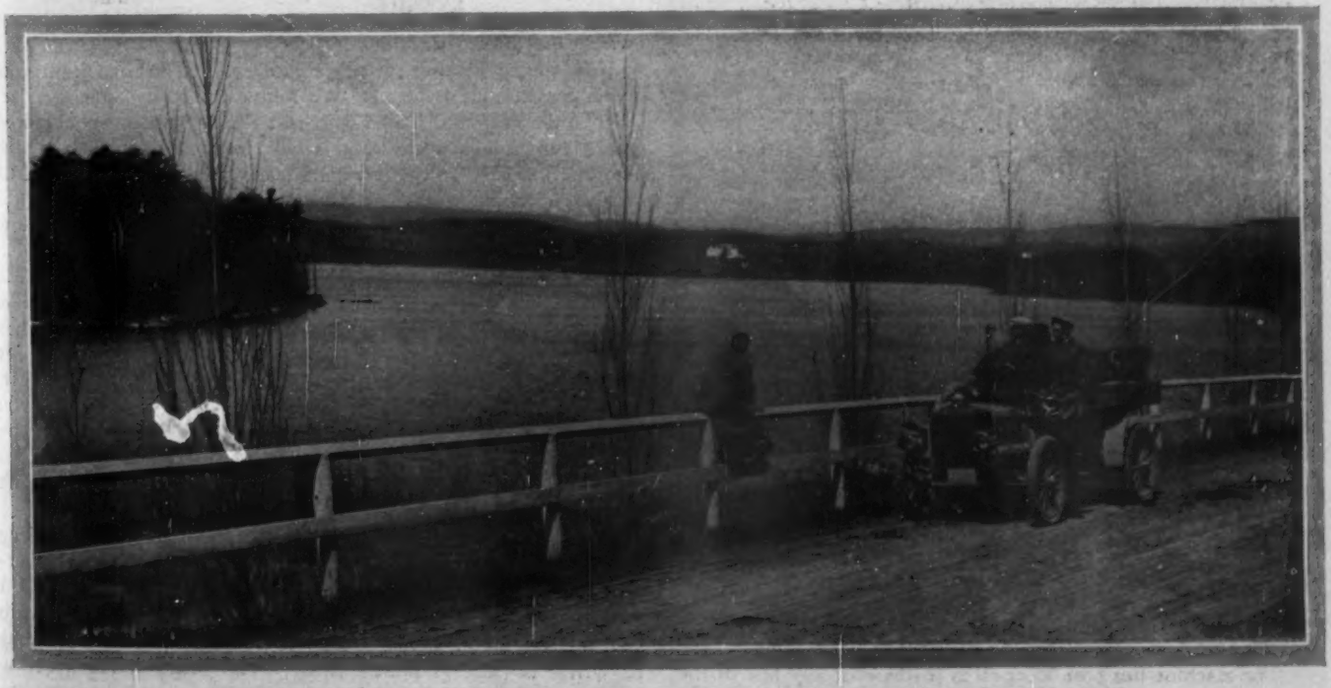


ON THE GOOD ROAD THAT LED OUT OF ALBANY—THE STATE CAPITOL IN THE DISTANCE.

A FRENCHMAN must be forgiven if he is fastidious in the matter of roads, for his country is celebrated in this respect above all others. I have journeyed in an automobile from New York to Albany, and the highway in the main is excellent. I have also toured from New York City to Springfield, and I must again repeat my good opinion of the road.

But the portion of the route selected for the June Economy Run of the New York Motor Club which lies between Albany and Springfield was unexplored country for me, and therefore I seized with avidity the opportunity of doing this trip with Harry Unwin, chairman of the Contest Committee, in a White steamer. The Albany-Springfield section figures as the second day of the economy run, and this picturesque Berkshire country proved enjoyable in the extreme for one who has covered a good many of the scenic parts of Europe. I said that it was most enjoyable, but I should have qualified the statement that such would have been the case had it not been for the terrible roads, which to me seemed nothing better than chaotic lines drawn across hills and through vales by some devilish hand.

Of course, it was true that we left Albany in the rain, and there had been more of it previous to our starting. But, Great Heavens! what horrible quagmires we encountered. Save for the State road, which lent its resting smoothness for two score of miles, we enjoyed the scenery most of the time after the fashion of those sailors passing alongside a beautiful island and trying to admire the shores while uncomfortably their boat rocked on a rough sea. One of us, enthusiastically pointing to an imposing mountain in the distance, would exclaim: "Oh, say, look at that!" And just at the second of his last word the right rear wheel would sink and disappear in the nameless mud! And, always



NEAR LENOX, MASS., THIS BEAUTIFUL LAKE CHARMINGLY FITS INTO THE PICTURESQUE SCENE.

admiring the great big mountains over yonder in the distance, every one of us would jump off, taking great care not to kick the blessed camera, and, amidst the most wonderful landscape in the world, we would together buttress our shoulders against the dirt-sprinkled tonneau. But never mind, the trip was interesting from start to finish.

A SIDE-HILL FARM IN NEW YORK STATE.

Now, for the benefit of the contestants, I am going to indicate as faithfully as possible the itinerary of our journey.

Thursday morning, 7.30 A.M.—We leave Albany via State street, then turn right into Broadway, and a mile and a half further we turn to the left and cross a drawbridge. There we give fifteen cents, the toll fee. On crossing the bridge we turn sharp to the right (there is a newsroom on the corner). We then go about a quarter of a mile, and then turn to the left in Columbia street. Here contestants should remember that they must not turn with the trolley, but keep straight ahead to East Greenbush. The road is awful. It has been raining the night previous, and it is going to rain "some more." The sky grows dark. All around us are laid harmonious vales, valleys, and plateaus, newly painted with that sweet green of Spring. Although Mr. Unwin is an adroit driver, our coats and faces receive disagreeable hunks of mud from time to time. Now it is raining. I thought it would.

Here is Schodack Center, a hamlet that contains an empty horseshoer shop. The autometer accuses us of 10 3-4 miles. At the top of a hill on the left we pass a large white house with a cupola, probably built in the colonial days. There we turn to the right (remember this), and a pump marks the intersection of the fork. Then we continue straight ahead to North Chatham.

BETWEEN LENOX AND PITTSFIELD—HOTEL ASPINWALL.

If you are not in a hurry, before we reach Valatie, let me tell you what Mr. Unwin did at North Chatham. Mr. Unwin, our amiable host and driver, has been doing a little thing which, *entre nous*, has nothing to do at all with the economy test of the N. Y. M. C. Without asking permission he jumped from the car and implanted a kiss on the fresh, purple, pearl-setted mouth of a sweet little brunette of sixteen, for the simple reason that the pretty lass brought us two heavy pails of water, for the machine. When this little act was performed, the girl—who possibly had never been kissed before—asked me, with an angelic smile, "If the gentlemen wanted anything else." But before I could have said "You bet," the steamer was off at top speed.

Now, Valatie. On leaving the village we climb a long hill and turn to the left—20 miles. Here we turn sharp to the right and pass a wide river over two covered bridges—23 miles. Here I shall not make any facetious remark about increasing the speed. The figures speak for themselves, and the drivers, consequently, know what they have to do. At that mileage a big red barn stands on the roadside opposite a large white house. Turn to the left. Half a mile further up we meet a fork near an unpainted church. We again take to the left, and then the road leads directly to Chatham. At the end of the town is a fork near a big hotel, the Windsor; we take to the right, pass the tracks a couple of hundred feet further on, and then turn to the left. Then the road leads directly to the State Line—30 1-2 miles.

Here the automobilist will travel in a splendid country, very fertile and cultivated. Little streams, bordered with willows and poplars, peaceful valleys, and great, bold hills in the distance, are parts of the picture. Alongside the railway tracks we find the monument marking the State Line, dividing New York and

POST IN FRONT OF HOTEL SEPARATES TWO STATES.

Massachusetts. We take lunch there in a good old roadhouse, where the milk is delicious.

Now the enchanting scenery commences. The road leading to West Stockbridge is better. We follow the trolley tracks. Parallel to the road and joined by a soft slope of about five hundred yards, runs a high, rocky ridge strewn with tiny bouquets of pine and birch trees. On the left hand lays a flat country, relieved by a series of small lakes. At the 51st mile a bad double turn presents itself; it is a railroad bridge, under which we pass at low speed after two sharp angles. We follow the trolley again.

Great Barrington—52 miles. A delightful, clean, quiet little locality. We stop in front of the automobile station on a wide, asphalted avenue and take gasoline and water. The afternoon has been pretty warm, and I suggest that a cool glass of beer or something would not be harmful, but, with a sad smile, Mr. Unwin informs me that this is a "dry town." "What do you mean?" I said. "I don't understand." "Well," he replied, "you will understand in a minute; I am going to introduce you to a gentleman, here, over the way; simply tell him that you don't feel well, that's all."

Rather puzzled, I followed my companion. We enter a drug store. Mr. Unwin speaks in a low voice to an old bearded pharmacist wearing spectacles. This apothecary looks at me and I look to the floor in an uneasy way. Then he makes Mr. Unwin sign a prescription blank; I look over his shoulder. The name he writes is "C. W. Smith, M.D." The druggist looks at me again, rather suspiciously this time, and five minutes later we are

in possession of half a pint of ordinary Scotch whiskey. This and the kissing business of the morning I will remember for a good long time.

We leave the town and again follow the trolley tracks—59 miles. We turn to the right and cross the Housatonic river—61 miles, and enter Glendale. From there a wide avenue leads us to Stockbridge. I do not know of anything more charming than this part of Massachusetts. We must be at a high altitude. Dusk comes slowly. On our right, in the distance, the glimmering landscape, limited by rocky chains, fades to our sight; but near us is a green lawn on which stand lofty cedars and oaks, assuming in the soft evening light a pensive attitude. There are no villages nor towns now, but artistic cottages, each in its own park.

The Red Lion Inn, in which we stop over night, is an old-fashioned hostelry, exceedingly clean and spacious. It was a very restful night for us, and the excellent breakfast we had in the early morning will also stand as a part of our recollections.

Friday, May 4, was a beautiful day, and over the grand scenery a glorious sun spread its warm smiles from dawn to dusk. On leaving Stockbridge via Main street, we meet a triple fork at the end of the town—mileage, 64 miles. We take the middle road, leave an Indian monument on our left, then the road turns to the right and continues to Lenox—69 1-2 miles, Curtis Hotel. We turn to the right and continue uphill, passing a white church and the Hotel Aspinwall. The seven miles separating Lenox from Pittsfield pass like a dream. Here the highway runs on the mountain flank, and the charmed eyes of the traveler can contemplate, diluted in the blue morning, the faraway rocky domes of the Berkshires, down to their feet; a tranquil, silvery stream; two or three glittering lakes, and, on every plateau, a millionaire's white cottage delicately set between the soft green of the valley and the tender azure of the skies. The road descends to Pittsfield—76 1-2 miles. In Pittsfield, to reach the Central Auto Station, motorists must continue down Main street, two blocks beyond the Square, to Tenner street, then turn to the right, go one block, and then turn to the left.

We return by the same road to Lenox—83 1-2 miles. At Hotel Curtis, we turn to the left and continue ahead—87 miles. At the foot of the hill we cross a bridge, on our way to Lee. The road is as picturesque as ever. Now East Lee—90 1-4 miles. The road here is perfect. We pass the shores of a beautiful lake, bordered by a white fence, and right after go uphill amidst the wildest nature. We find ourselves on the top of a high mountain. The spot is very windy; all around us lie distant valleys and villages. The tiny Westfield river jumps among its boulders. Two or three high peaks, miles away, point to the sky. I ask Mr. Unwin to stop a few minutes and let me contemplate at leisure the panorama, which reminds me of the great Klondike.

We shoot down hill on a very rutty and narrow stretch of road and reach West Becket—96 miles. At the fork, in front of the postoffice, we turn to the left and again start climbing a considerable grade. At the 97th mile we meet a fork, turn to the left, and continue to ascend. At the top of the hill we pass on the left an old wooden shack blown down by the wind; then we descend a steep slope, at the foot of which we find the Westfield river, already a little larger here.

Chester—105 miles. From here to Springfield, end of our journey, the road stands in a fair condition. Immediately after leaving the town, we turn to the left on a railroad bridge. We are from now on entirely surrounded by mighty hills, shaded with all the tones of spring. The Westfield river widens. Woronoco. There is a big paper mill with an enoromus flume carrying water over a distance of half a mile. For fifteen miles the trip is delightful along the picturesque creek, the air balmy and invigorating. We keep a very good gait.

Westfield—124 miles. Before a big tree in the center of the town we turn to the right, and then, following the trolley tracks, we reach Springfield, after having covered a distance of 124 miles.

The conclusion of my two days' experience in that part of Massachusetts is that America should be the first and only country in the world for automobiling, if she only had good roads.

NEW LONDON HAS NEW GARAGE.

NEW LONDON, CONN., May 7.—After a long time waiting to see whether the automobile was a fixture or merely a passing public fancy that would soon die out, New London has evidently come to the conclusion that the motor vehicle has come to stay, and a man has settled in town who possessed the hardihood to build a modern garage. Stables only have until now been available for the storing of automobiles by tourists stopping in this city, but hereafter the traveler may feel comforted in the knowledge that his wants will be well looked after in New

NEW GARAGE OF C. K. SMITH AT NEW LONDON.

London. C. K. Smith, who has established the innovation, came here from Hartford, had the garage built, and after a few months' experience, is so well pleased with his reception by local and other automobilists, that he will enlarge the building in time to give better facilities another season. The garage is on Main street, the direct route east and west through New London for tourists covering the Long Island Sound shore route from New York to Boston. It has all the modern accessories and is well stocked with cars, available for the occasional automobilist, and on sale.

AUTOMOBILE FREIGHT LINE IN WISCONSIN.

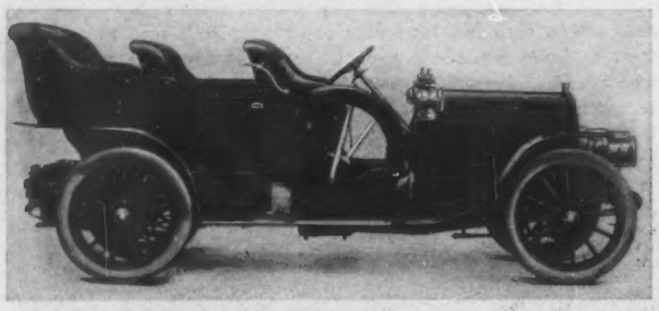
MILWAUKEE, May 7.—An automobile freight line will soon be put in operation between Appleton and Neenah, two northern

INTERIOR VIEW OF NEW LONDON GARAGE.

Wisconsin cities, by the Wheeler Transfer Company. The service will be conducted like that now operated between Menasha and Neenah by the Wisconsin Auto Transit Company. In addition to these companies which have already been formed, there are several others in an embryo state which will compete with the interurban electric lines in this quarter of the state. Several of the lines carry freight and passengers, but the proposed line between Appleton and Neenah will be for freight purposes only.

HEAVY TRADE ROUNDABOUT TACOMA.

TACOMA, WASH., May 3.—The automobile business can now be said to be humming here. The three firms have all they can attend to, and cannot secure cars fast enough to fill orders. Con-



NEW STEARNS "PULLMAN" MODEL WITH EXTRA BUCKET SEATS.

siderable business with the smaller towns of the state is done through houses here. Two firms have sold cars to Centralia, and one of them has placed orders in Nort Yakima, which is east of the Cascade Mountains. The cars in Centralia, 65 miles away, were driven down from here by the new owners. Richard Vaeth, who has not yet decided what his new car will be, this week took out a permit for the erection of a private garage, to be of concrete and steel, and cost $1,000.

As an increase to the business here is the great interest manifested in the prairie roads, leading to Mount Tacoma. These roads are now in the best of condition, and every Sunday the automobiles do not give the dust time to settle. The Tacoma Country Club, which has its rendezvous on American Lake, is one of the favored spots, and nearly all the members own cars.

Chester Thorne, a prominent banker of this city, had his new Pope-Toledo confiscated in San Francisco during the earthquake. He had been touring southern California, and only the Saturday before the earthquake arrived in San Francisco.

HUSTLING CHICAGO'S TRADE ACTIVITIES.

CHICAGO, May 7.—The Chicago Automobile Dealers' Association's attorney, William A. Jennings, has filed a bill in the Cook County Superior Court against the city, for the purpose of enjoining the city from enforcing the ordinances passed in 1904 to

GENERAL CUTTING IN FIRST FOUR-CYLINDER OLDS IN NEW YORK.

regulate the speed of automobiles, to force the owners of machines to take out licenses, and to display numbers on the cars. According to the association, these ordinances are unfair and are of the nature termed class legislation. The ordinances strike at automobiles and automobilists in particular, and exempt owners of other kinds of vehicles.

The Apperson Brothers' branch store will move from its old quarters on Wabash avenue to 1240 Michigan avenue, "Automobile Row," this month.

George Arbuckle, who has recently returned from Mexico, is now in charge of the local Winton branch. H. L. Owesney, who has lately been in charge of the branch, has been appointed a general supervisor. His headquarters will be at Cleveland.

C. P. Warner & Co., of 1218-1220 Michigan avenue, will handle the Crawford in several of the Western States.

The Central Garage, of which H. C. Griffin is manager, has moved to Jackson boulevard and Market street. The building which it now occupies was formerly the Parmelee barns and has accommodation for at least 200 cars.

STATISTICS THAT TELL A STORY OF PROGRESS.

WASHINGTON, D. C., May 7.—The Director of the Census has announced the result of the tabulation of the statistics of automobiles for the calendar year 1904, forming a part of the census

KING EDWARD'S NEW ENGLISH DAIMLER FITTED WITH SPECIAL BODY

of manufacturers of 1905. The figures indicate that there has been a very large increase in the industry of automobile manufacturing in the United States as compared with the statistics of 1900, which covered the fiscal year ending May 31, 21,386 passenger and pleasure cars having been produced in 1904, as against 3,316 in 1900, and 1,441 cars of other styles in 1904, as against 407 in 1900.

The number of establishments in 1904 was 121, exclusive of 47 establishments making automobiles, but engaged primarily in the manufacture of other products. The value of automobiles turned out by such establishments was $879,205. The number in 1900 was 57. The percentage of increase in 1904 over 1900 was 112.3 per cent.

The capital invested in 1904 was $20,555,247, as compared with $5,768,857 in 1900, or an increase of 256.3 per cent.

Wage earners numbered 10,239 in 1904 and 2,242 in 1900, while the wages paid was $6,178,950 and $1,320,658, respectively. The percentage of increase was 367.9 per cent.

The cost of materials used was $11,658,138 in 1904 and $1,804,287 in 1900, an increase of 546.1 per cent.

The value of the product, including amount received for custom work and repairing, and value of products other than automobiles, was $26,645,064 in 1904 and $4,748,011 in 1900, an increase of 461.2 per cent.

A TYPICAL AMERICAN 60-HORSEPOWER CAR

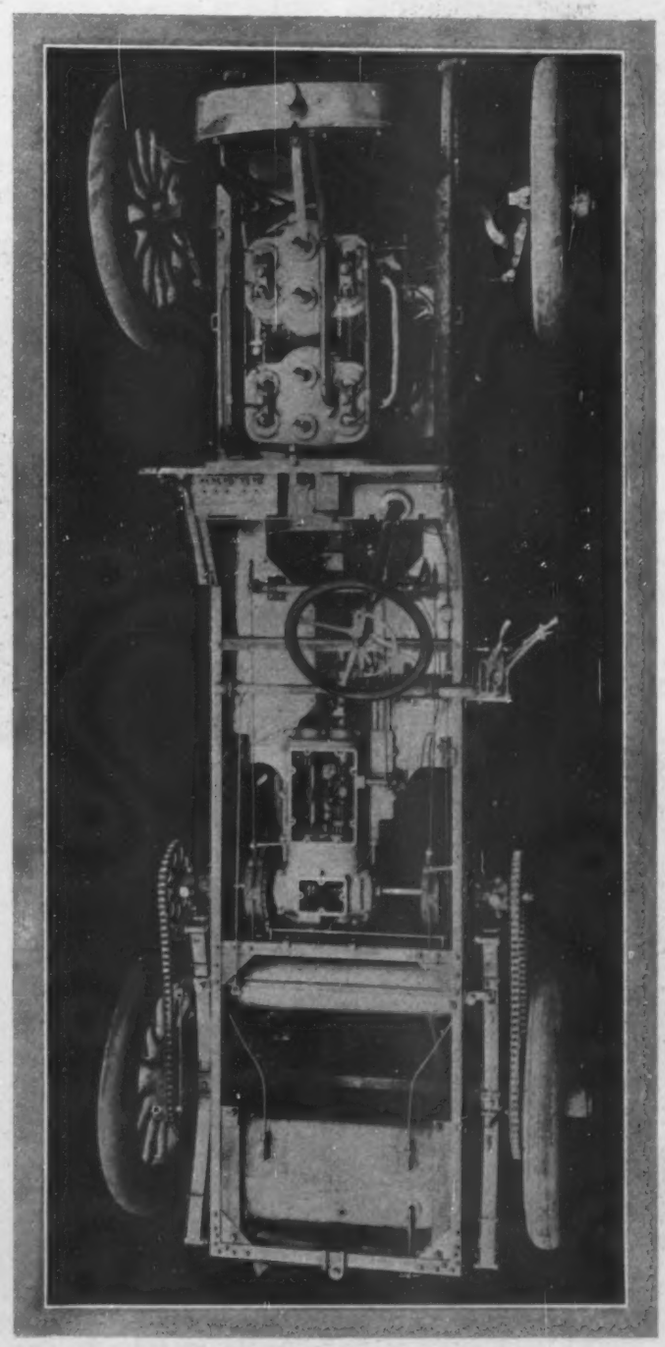
THIS week, the first of the new 60-horsepower cars was put into operation by the testing department of the Stamford, Conn., factory of the Lozier Motor Company. The general characteristics of the Lozier are preserved in the new production, the first of which is its large size and high clearance. In appearance the chassis is striking in the impression it conveys of strength, an impression which is further enhanced when the motor itself is critically examined. It is a gracefully designed, powerful-looking car. Much aluminum enters into the construction of the underbody section, and the way it is cross-webbed gives it a solid appearance, irrespective of its proportionate light weight. All these castings are made at the Plattsburgh, N. Y., plant, where they are treated by special processes.

An examination of the working parts in partial detail shows the motor to be of the four-cylinder vertical type, with aluminum base supported by webbed cross members of the same metal cast integral with the base. The bore is 5½ inches and stroke 6 inches. The crankshaft is machined from steel ingot, with bearings case-hardened and afterwards ground true to center by special Lozier machinery. A hard grade of phosphor bronze is used in the bearing boxes, into which babbit metal is compounded in ½-inch sections in spiral form. The makers state that the case-hardened crankshaft bearings permit the use of the hard bronze in the boxes and the efficiency is thereby increased. The diameter of the front and rear journals is 2⅛ inches, and that of the middle journal, 2¼ inches. Inlet and exhaust valves are located on opposite sides of the cylinders. They are made of nickel steel and mechanically operated by camshaft, which is lubricated by the splash system used in the engine base for lubrication of the crank bearings. Fiber gears mounted on brass skeleton to give them stiffness are used on camshaft.

Lubrication is by combined splash and force feed, independent pumps taking of the force-feed portion of the system. In the main crankshaft bearings there is a reservoir under each, fitted with spring and felt plug, which acts as a filter for the oil.

The motor is equipped with Scheubler carbureter, to which is attached a balanced throttle of Lozier design. A ball-type governor on camshaft automatically controls this throttle, the tension of which is controlled by the operator from the steering wheel, who can set governor for any speed desired, and which, it is asserted, is automatically maintained on practically all grades.

A double ignition system is used, each independent of the other. A reference to the illustration will show the two separate sets of plugs in the tops of the cylinder, also the location of the magneto, immediately forward of the carbureter, in a location at side of frame, convenient to get at. The gasoline tank is situated at the rear of the chassis underbody and has a 12-inch clearance from the ground. It is of 30 gallons capacity and has exhaust pressure feed, with regulating valve.



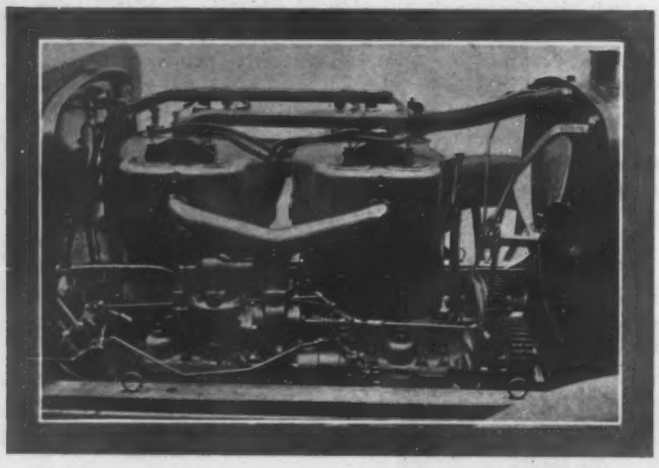
CHASSIS OF NEW 60-H.P. LOZIER TOURING CAR

Immediately connected to one of the cross members of the base of the crankcase is a reinforced aluminum case, inclosing the multiple-disk clutch, which in itself is interesting from the fact that it is composed of 56 disks. The disks are of saw steel. Attached to the aluminum case mentioned above is bolted another of the same metal, extending under the shaft and transmission case, making a continuous protection for motor and its working connections, from the forward part of its base to the jackshaft at rear of transmission. Under all these cases a strengthening rib extends longitudinally with the frame of chassis. Sliding-gear transmission of the selective type is used, four speeds ahead and reverse. The drive is the double chain type, with rear sprockets located directly over the inner ball bearings on rear wheels.

The double running brakes are of the contracting type, one on each side of the differential and equipped with equalizing springs. The internal expanding brakes are dust proof, and are also equipped with equalizing springs. The emergency brake is operated by a hand-lever pull toward the rear. This manipulation of the emergency is designed to give the operator greater purchase in applying the brake, as it allows bracing of the body with the feet. There is also a safety back-stop device, operating through a dog and ratchet on the differential brake drum. The dog is thrown into play by a small lever at side of the gear-shifting quad-

rant. This prevents the car from backing down hill in case of failure of brakes to hold, and enables operator to start car on steep grade with all brakes free.

All axles are nickel steel, as is also the jackshaft. Three-point suspension springs support the chassis frame, which in itself is constructed of special steel 3-16 of an inch in thickness. At the



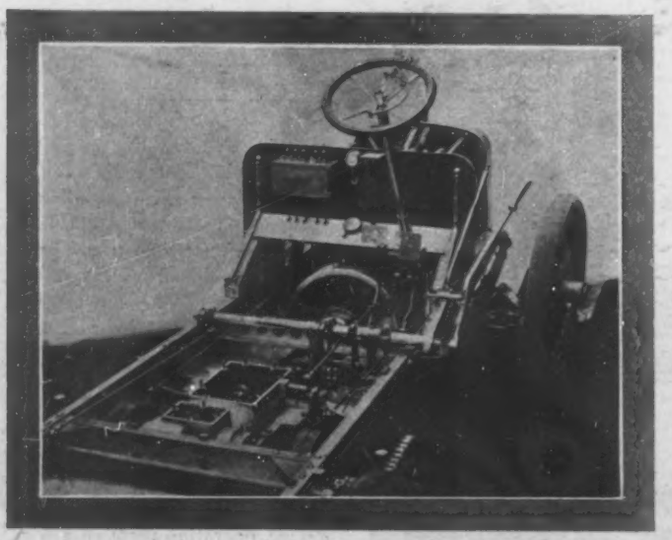
VIEW OF 60-H.P. LOZIER MOTOR, CARBURETER SIDE.

center of the car the frame has a vertical depth of 5 inches. No roller or plain bearings are used in the car, with the exception of those on the crankshaft. All others are ball bearings, nineteen sets being used.

Steering-column controls are stationary—they do not turn with the wheel—and worm and sector are irreversible. The cross link connecting the front wheels to the steering gear is placed at the rear of the front axle, out of the way of immediate danger in case of collision.

A REMARKABLE EUROPEAN RUN.

Charles Jarrott performed a remarkable feat on April 5 and 6, running his 40-horsepower Crossley car from London to Monte Carlo in 37 1-2 hours. He had arranged a schedule to do it in 48 hours, and even then it seemed a difficult thing to accomplish. Accompanied by the author, Mr. Filson-Young, and a mechanician, the intrepid driver left his London office at 7.45 A. M. on Thursday morning, caught the 11.45 boat at Folke-



LOZIER CHASSIS FROM REAR SHOWING MECHANISM.

stone and crossed over to Boulogne, where a fourth person was picked up. From there the route was by way of Abbeville, Beauvais, Dijon, Lyons, Avignon and Cannes to Monte Carlo.

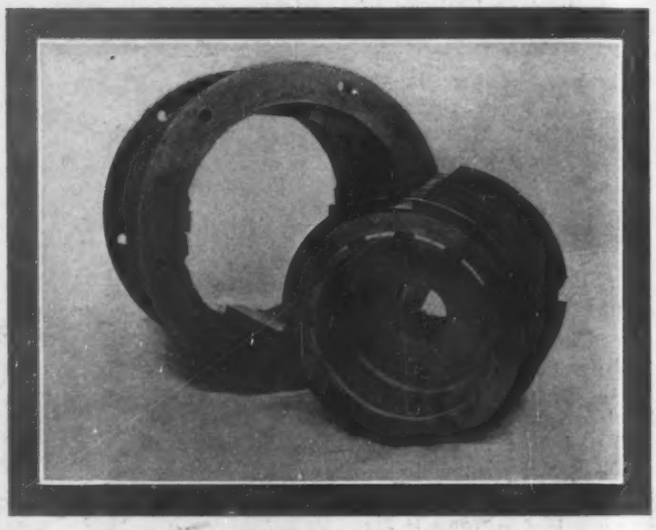
HALL PATENT CONCERNING ALUMINUM.

BUFFALO, N. Y., May 7.—Inasmuch as the automobile industry has been calling for large quantities of aluminum, much interest is being manifested by manufacturers in the expiration last April of the Charles M. Hall patent. This patent was granted to Mr. Hall on April 2, 1889, and under it the Pittsburg Reduction Company has found it possible to control the manufacture of the white metal in the United States up to this time. The importance of the Hall patent will best be understood when it is known that it protects the use of an electrolyte composed of cryolite as a solvent for bauxite, the raw material from which aluminum is made.

While it is understood that this electrolyte is now public property, the Pittsburg Reduction Company's method of operation is still protected by the famous Bradley patent, which will not expire until February 2, 1909. Others may seek to enter this field of industry, but the Pittsburg concern has not shown any fear of competition, for it has recently contracted for a large additional block of power from the Niagara Falls Hydraulic Power & Manufacturing Company.

SOME KANSAS CITY INVENTIONS.

KANSAS CITY, May 7.—Walter J. Paton, of Kansas City, has been granted a patent on a new tire for automobiles, which he says has shown up well under severe tests. The tire has an



LOZIER MULTIPLE 56-DISK CLUTCH.

iron rim bolted to the wheel in the form of a tube, with the outward part cut away sufficiently to permit the action of spiral springs fastened to the rim. Over this tube and firmly attached to the springs are twelve movable sections, playing loosely in slots on the solid rim, and also in slots at the end of the sections. As the wheel passes over the road, the section on the road is depressed by the weight of the vehicle, the springs giving the required resiliency. The tire is entirely of metal.

H. Holzmark, also of this city, has invented another resilient wheel, which takes the form of a small pneumatic ring, perhaps fourteen inches in diameter, that is interposed between the hub and the periphery of the wheel. It is held by short rods passing through it, so that the road shocks are taken up by this cushion instead of by the outside of the wheel. He has secured a patent on the device.

W. C. Brooks, a machinist in a local automobile shop, has patented a carbureter which he says shows a considerable fuel economy. He has had it attached to a number of cars here. The Smith Automobile Company, of Topeka, is fitting it to its cars this year and the Olds Motor Works is conducting tests with it. Briefly, the carbureter has three ports, with the throttle acting on two of them, so that, when running at low speed, only one port is open.

E. R. THOMAS DETROIT COMPANY.

Detroit has been selected as the location for the factory of a new corporation, which has been capitalized for $300,000, and which will be known as the E. R. Thomas Detroit Company, for the manufacture of automobiles, which will be put out under the well-known Thomas name. The officers are: President, E. R. Thomas; first vice-president, H. E. Coffin; second vice-president, J. J. Brady; treasurer and general manager, R. D. Chapin; secretary, F. O. Bezner. A notable feature of the new company is the fact that E. R. Thomas, the well-known manufacturer of the Thomas flyer, is heavily interested in a financial way, and the entire output will be handled by the E. R. Thomas Motor Company of Buffalo for the season of 1907. Messrs. Coffin, Bezner, Brady and Chapin have been identified with the Olds Motor Works for several years and are thoroughly experienced in the details of a large manufacturing business. The type of car to be made will be announced later, but it will fit in well with the present Thomas flyer. It is designed by Mr. Coffin, who has made an excellent reputation as a clever young engineer.

A large factory has been secured in Detroit and the new company will begin operations at once. Contracts for some of the parts have already been placed, specifying early delivery, as the new line of machines will be ready for the market early in the fall. Temporary downtown offices have been established at 919, 920 and 921 Majestic Building, Detroit, and the business will be handled from there until the remodeling of the factory offices.

H. E. Coffin, the new company's first vice-president, built an automobile while yet at college, eight or ten years ago, and has been a close student of design ever since. The new two and four-cylinder Oldsmobiles are his latest product, and the success of these is ample evidence of his ability.

Secretary F. O. Bezner gained his first business experience with the National Cash Register Company, of Dayton, O., and has been purchasing agent for the Olds Motor Company for some time.

J. J. Brady, the second vice-president, was with the Olds Company for seven years, handling all their shipping and occupying the position of traffic manager.

Treasurer and General Manager R. D. Chapin was the first and only sales manager of the Olds Company up to the time of his resignation, March 1, of this year, and has covered the entire country and knows the automobile trade in every state in the Union. He is splendidly posted on the manufacture of automobiles, as he started in the shop, and has worked on them in every stage of construction.

NEW AUTOMOBILE CONCERNS.

TOLEDO, O., May 7.—Two new automobile factories with Toledo as their home is the record of the past week. The first of these is the Maumee Valley Automobile Company, which has been organized and taken a lease of the Kirk automobile and bicycle old plant on Oakwood avenue. The leaders in the enterprise are G. M. Verity, Middletown, Ohio, and F. W. Keating, formerly connected with the Pope Motor Car Company, of this city, but more recently with the Mississippi Valley Automobile Company, of St. Louis. The company will make only high-grade cars, the minimum price being between $4,000 and $5,000. It expects to get started in time to have its cars on the market for the season of 1907.

It Will Be Called the Maumee.

The Maumee Motor Car Works is the name of the other concern which will have its headquarters in this city. The plant of the company will be located at Dundee, Mich., and will consist of the establishment of the Wolverine Automobile Company. J. G. Swindeman, W. K. Terry, and Frank Blair are the three Toledoans who have organized the company. The name of the company's cars will be the Maumee, and its first one will be ready early next month. It will not, however, seek to do much business this season, but will be ready early next.

Lehr Agricultural Company May Make Autos.

The Lehr Agricultural Company, of Fremont, Ohio, is about to break into the automobile field. It has made one car as an experiment, and as it has proven a success the company is arranging to add automobiles to its list of regular products. The company has not yet fully determined as to the details of its new undertaking, but President Lehr states that within two months his company will have decided and will have arranged to begin the manufacture of automobiles in earnest.

GROUND BROKEN FOR NEW GARFORD PLANT.

ELYRIA, O., May 7.—The Garford Company has broken ground for its new plant, which will be one of the largest identified with the automobile industry in the country. The Lake Shore & Michigan Southern railroad is building a spur line to the plant. Mr. Garford has been largely instrumental in the formation of a traction company which proposes to build an electric line from the factory district of the city to the center of the business district, the idea being to supply the best possible transportation facilities for the employees.

PRESIDENT GEORGE N. PIERCE BREAKING GROUND FOR THE NEW PIERCE FACTORY, BUFFALO, N. Y.—THE FACTORY SITE COMPRISES FIFTEEN ACRES OF THE OLD PAN-AMERICAN GROUNDS.—CHARLES CLIFTON, PRESIDENT OF THE A. L. A. M., STANDS BESIDE THE SOD BREAKER, WHILE THE FAMILIAR FACE OF HIS SON PERCY IS EASILY DISTINGUISHED.

SLOW DELIVERIES IN QUAKERTOWN.

PHILADELPHIA, May 7.—"Slow deliveries," the bane of all agents and branch managers, is again the cry all along "the row," and this despite the fact that the factories are doing as well in this respect, if not better, than was looked for only two short months ago. The trouble is with the demand, which is far greater than was anticipated. Just where all the cars that have been "sold" are to come from is a mystery. Many who contracted the automobile fever at the local show last March, and who delayed ordering in the belief that they would experience no trouble in securing any car they wanted if they would offer spot cash, now realize their mistake. Offers of premiums for early delivery are a daily occurrence in "row" establishments, and at the present rate any old kind of a car, even of the second-hand variety, will be in demand by July 1.

The Marion car made its appearance on "the row" last week. It will be handled here by Thomas M. Twining, who is now fitting up quarters at 218 North Broad street.

Local agents are beginning to take on as many agencies as they can see in sight, in the belief that if early delivery cannot be promised on one car it may be on another. The South Broad Automobile Company, at 729 South Broad street, who recently acquired the local rights for the Gale and the Dorris, announced on Saturday last that the Duquesne had been added to its line. In a multiplicity of cars there is wisdom—and profit.

The hammer and saw of the carpenter are still at it, pegging away merrily in an effort to make the accommodations fit the demand. The Colonial Auto Company, at Fifteenth and Oxford streets, announces the completion of the improvements necessary to house its stock of Dolson cars, the agency for which it recently acquired, and purposes holding "open house" during the coming week to properly celebrate the event. A similar announcement is made by the Brazier Automobile Works, which handles the Marmon here and has been doubling its garage accommodations.

In the line of accessories, the newest local acquisition is the Brown Auto Top Company, 1327 Buttonwood street—just off "the row"—which makes, repairs, and alters automobile tops, storm and glass fronts, slip covers, and wind guards, besides turning out a complete line of car trimmings.

THE BACKWARD CITY OF INDIANA.

NEW ALBANY, IND., May 7.—This city is known as the dark spot of Indiana automobiling, and the determined effort on the part of city and county authorities to make the use of an automobile almost prohibitive through excessive fees and penalties is bearing successful fruit.

New Albany is a city of several thousand inhabitants, but despite this fact there are only two automobiles in the city, one an Olds runabout and the other a Locomobile. The situation is too discouraging for others to purchase automobiles, and the two men who own them find their cars a burden because of the exorbitant sums they are compelled to pay for operating them.

The City Council some time ago fixed the annual city license on automobiles at $10 a year, probably the highest city license fee in the State. The license on a horse and wagon is $1.50 a year. Toll, one of the relics of barbaric days in some parts of Indiana, has been almost doubled on county pikes so far as automobiles are concerned, drivers of motor cars being compelled to pay five cents a mile toll.

The two owners are O. C. Thompson, an electrician and one of the leading citizens of the city and Clarence Walker, a well-known business man. These two men are practically powerless to make a fight because of their minority. So burdensome has the situation become that Thompson has appealed to some of the leading automobile men of Indianapolis to assist in a fight against the city and county authorities. It is probable that this aid will be given willingly and the excessive license and toll will no doubt be given a thorough test in the courts and, if necessary, will be carried to the Supreme Court of the State.

KANSAS CITY TRADE ITEMS.

KANSAS CITY, May 7.—J. D. McInnes, for years a Kansas City railroad man, has been given the agency for the Cadillac, succeeding Fred Pattee. Mr. McInnes has taken the old garage of the Kansas City Automobile Co., on McGee street.

E. P. Moriarty & Co. have taken the agency for the Peerless and have contracted for three cars this season. This firm now also handles the Packard, Pierce, Stevens-Duryea, Winton and Autocar.

C. O. Meade, manager of the local Ford branch, reports a steady and heavy demand for the new four-cylinder runabout, but will not promise deliveries inside of thirty days. He says it is the factory plan to put through a large number at once, and therefore the work of assembling is held back while a large number of parts are taking the efforts of the factory. One hundred of the cars are to be assembled each day, factory advices inform him.

The Kansas City Motor Car Co. proposes to change its model and build only six-cylinder cars for the remainder of the season. The factory at Sheffield is running with a small force. Work on the downtown salesroom, at Ninth and Central streets, is progressing rapidly.

The Smith Automobile Co., of Topeka, Kans., is adding a considerable force to the number of men already employed. The car made by the company this year shows many radical changes from last year's model.

FROM THE STANDARD ROLLER BEARING CO.

Editor THE AUTOMOBILE:

[331.]—In your issue of April 12, on page 644, we note that you have a rather full account of our patent suit recently instituted against the Hess-Bright Manufacturing Company for infringement of our patents, covering annular ball bearings. The article in question is complete, so far as it goes, and it appears to give a thoroughly satisfactory explanation of the matter except in one respect, and we think that there may be a misunderstanding regarding the subject unless you make a correction. You state that if the court should decide in our favor, the construction of annular ball bearings would be open to any concern that might care to use them, as the patent referred to will expire next December. This statement is not correct, as the patent referred to only covers the use of yielding partitions or springs between the balls, and does not refer to the particular type of race and cone used in annular ball bearings. This latter is covered by patent No. 434472, issued in 1890, and it is also covered by patent No. 615070, 1898, both of which patents are owned by us. There are other patents which we own, covering modifications of the different types of annular ball bearings, in addition to those mentioned.

We trust it will be agreeable to you to make some statement to this effect in another issue of your paper, as otherwise the trade might misunderstand the previous article and feel warranted in making the bearings, when in reality no one has a right to do so.

STANDARD ROLLER BEARING COMPANY,
S. S. Eveland, Vice-president and General Manager.

Philadelphia, Pa.

A THING IN FAVOR OF THE AUTOMOBILE.

From the Muncie, Ind., *Star* comes this editorial paragraph: "There is one thing to be said in favor of the automobile. Its necessary and frequent repairs have caused many repair shops to be started and put a number of competent machinists in possession of paying jobs. It has also established numerous auto inns and stables and supply houses. Make a long mark in its favor."

JAYNES SELLS HIS BUFFALO BUSINESS.

The well-known Buffalo automobile trade representative, W. C. Jaynes, has disposed of his interest in the Jaynes Automobile Company, of that city.

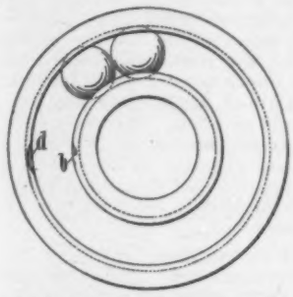
The Duke of Schleswig-Holstein is about to tour through the Balkans in his 45-horsepower car, visiting the king of Roumania and the Sultan on his way.

Patents

Ball Bearing.

No. 818,734.—E. Blin, of Aubervilliers, France.

This is a ball bearing of the standard annular type, in which the balls are inserted through recesses *b d* in the sides of



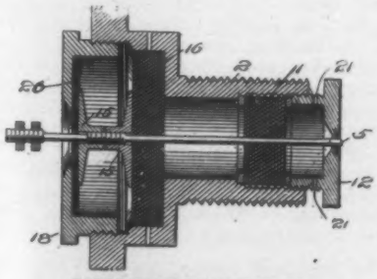
BLIN ANNULAR BALL BEARING.

the races. These recesses do not extend quite the full depth of the ball tracks, and after the race is half filled the balls must be forced in by pressure. When once in, however, they will not come out.

Spark Plug.

No. 818,372.—B. W. Hallstead, of Scranton, Pa.

This is a spark plug designed to afford unusual protection to the insulating surfaces against deposits of carbon from the cylinder. It consists of the following principal elements: The outer shell *2* is threaded to receive internally at its small end the cap *12*, by which the mica disks *11* are compressed between a pair of rings. These mica disks are not necessarily a gas-tight



HALLSTEAD SPARK PLUG.

fit on the central insulated stem *5*, but they serve to hold it in position. The tightness of the plug is secured by other mica disks *16*, which are held in place by the two flanged nuts *15 15*, one of which bears against the mica disks *26* in the outer cap *18*. The spark jumps from the end of *5* to the middle of the cap surrounding it. Holes *21* are drilled in the cap to allow play of the gases in and out. The position endwise of the stem *5* may be adjusted by screwing it in the flanged nuts *15*.

Fans for Air-Cooled Engine.

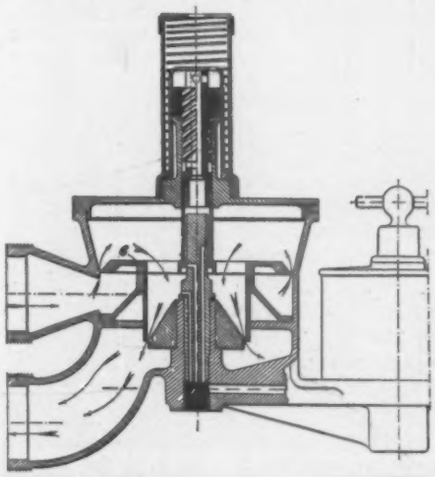
No. 818,735.—F. H. Bogart, of New Britain, Conn.

These fans are supported over the cylinders as shown in the drawing, and are operated by bevel pinions from a horizontal shaft driven by a round belt from the crankshaft of the engine. The fans and the shaft driving them run in ball bearings and are supported wholly independently of the engine cylinders.

Carbureter.

No. 818,853.—L. Renault, of Billancourt, France.

A carbureter whose principal feature is the provision of a plurality of orifices in the spraying nozzle, together with a shutter or sleeve slipping over the spray nozzle in such a way as to shut off one orifice after another as the volume of the aspirated charge is reduced. The air follows the course of arrows and lifts the annular valve *6* as the speed increases. The form of this valve is such as to restrict the pas-



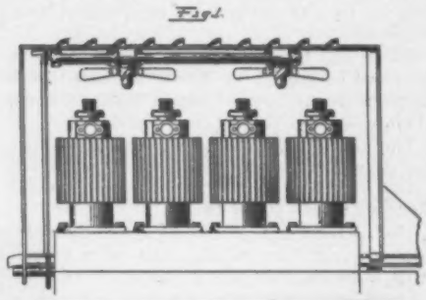
RENAULT CONSTANT MIXTURE CARBURETER.

sage of air both before and after it passes the spray nozzle, thereby offsetting the tendency to reduce the richness of the mixture at slow speeds.

Three-Speed Planetary Transmission.

No. 817,908.—W. Folberth, of Cleveland, Ohio.

This is a transmission in which, by the use of two clutches, it is possible to obtain three forward changes and reverse, with a small number of gears. The power is ap-



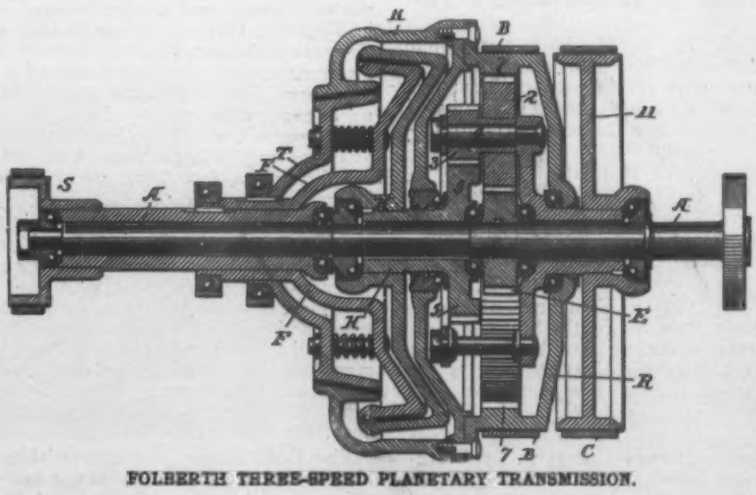
BOGART COOLING FAN ARRANGEMENT.

plied through shaft *A*, and delivered from the universal coupling or sprocket pinion *S*. Pinion *E* is keyed on *A* and transmits the power for all speeds. It meshes with planetary pinions *2*, which are secured to pinions *3*, meshing with gear *5*. Pinion *2* meshes with internal gear *7*, which is connected to clutch member *R*, and gear *5* is connected to clutch member *H*. For the high speed, both these clutches are engaged by permitting the related clutch members *T F* to take the position shown. The drive is then direct, all parts being locked together. For the slow speed forward, the friction band *C* is tightened, and clutch members *R T* alone are engaged by moving *T* to the right. Then the stud *4* is held stationary and gear *5* is rotated in the same direction as *A*, but at a much slower speed. For the intermediate speed, friction band *C* is released, and band *B* is tightened, the clutches remaining as before. Now *7* is stationary and *2* rolls around inside it, imparting a faster motion than before to gear *5*. For the reverse, *B* is released and *C* tightened, the clutch *H F* is engaged and *R T* is released. This holds *4* stationary again, and imparts the reverse motion to *7* and *R*.

Process of Burning Acetylene Gas.

No. 817,751.—J. B. Carroll, of Chicago, Ill.

A patent on the process of burning acetylene in a burner similar to that shown in patent No. 817,750.



FOLBERTH THREE-SPEED PLANETARY TRANSMISSION.

NEWS AND TRADE MISCELLANY.

One of the latest purchasers of a Thomas "Flyer" in New York City is William Randolph Hearst.

Work has been started on an addition to the plant of the Buick Motor Works, which supplies all motors for Buick cars, at Flint, Mich.

The Utica (N. Y.) Motor Car Company has moved its offices and salesrooms from Catharine and John streets to 333-337 Bleecker street, that city.

The plant of the Practical Automobile Company, at Genoa, Ill., has been practically finished and the installation of machinery has commenced.

The Motor Car Company, of Newark, N. J., is having plans drawn for the enlargement of its plant on Halsey street, between William and Hill street, that city.

The G & J Tire Company, of Indianapolis, opened a New York City branch store on May 1 at 10 West Sixtieth street. The new store will be in charge of A. T. Smith.

The Queen Manufacturing Company, makers of automobile creepers and other novelties, will remove its plant from Marshalltown, Ia., to Webster City, that state.

A tire guard, recently invented by Louis Slama, of Humboldt, Neb., will be manufactured in that city by Cooper & Linn, with whom the inventor has associated himself in a business way.

A long lease has been taken by the Auto Top Equipment Company, of New York, on the four-story building at 142 West Eighteenth street, which will be used as a manufacturing plant.

A new garage has been opened by the Thompson-Schoeffel Company, of Rochester, N. Y., on Caledonia avenue, corner of Spring street, that city. The old garage was recently destroyed by fire.

Work on the addition to Studebaker Bros., automobile factory at South Bend, Ind., is progressing rapidly. It is expected that the building will be ready for occupancy by August 1.

Work is progressing on the plant of the Mason Automobile Company at Des Moines, Ia. The location is at East Fifth and Market streets and the building will be two stories in height, 50 by 154 feet.

The Mora Motor Car Company, 317-320 Livingston Building, Rochester, N. Y., has issued in pamphlet form a handy digest entitled "Complete Motor Car Laws of the United States." A two-cent stamp will obtain a copy.

It is likely that the Pittsburg Automobile Orphans' Day will be held again this year in the latter part of May, and at least one other automobile benefit for the inmates of hospitals and those who are suffering otherwise is being planned.

The Rogers Automobile Company, a Springfield, Mass., corporation, has filed a petition with the courts for a dissolution. The petition states that there are no outstanding debts or liabilities and that the company has ceased to do business.

The Auto Transit Company, of Philadelphia, was chartered by the State Department at Harrisburg, Pa., last Friday, with a capital of $1,000,000. Charles Berg is the leading spirit of the new company, and Charles F. Pierce, 1203 Erie avenue, is the treasurer.

The F. B. Stearns Company, of Cleveland, is now benefiting from the results of having its work at the factory well advanced early in the season. The house is now able to ship a car a day, which, for one that requires over 2,000 hours' labor for each machine, shows a well-developed working system.

The Interstate Automobile Clearing Company, of 39 East Forty-second street, New York City, has been incorporated, with the following officers: President, William E. Metzger; vice-president and secretary, G. H. Stillwell; treasurer, C. A. Wardle. This house makes a specialty of second-hand automobiles.

One free factory site and about a dozen others for various considerations have been offered in Zanesville, O., to the Oscar Lear Automobile Company, of Columbus, for the erection of a factory for the manufacture of the Frayer-Miller cars. Ten acres or more is wanted by the company.

Branch stores for the sale of Pennsylvania clincher tires and mechanical rubber goods have been opened at 1241 Michigan avenue, Chicago; corner of Main and Tupper streets, Buffalo, and at 102 North Pryor street, Atlanta, Ga. Other branch stores had previously been established in New York, Philadelphia, Boston and London.

By an ingenious method the Hartford Suspension Company is enabled to practically transfer the 1905 Truffault-Hartford suspensions into all the advantages of the new 1906 suspension, and many of their customers are obtaining the advantages of the new models by having them changed at the factory, which is now at Clarkson and West streets, New York.

There may be a few minor changes in the details of the construction of the Maxwell line next year, but the same general lines will be followed in 1907, the product having met with much favor on the part of agents and the buying public. The above announcement has been officially made by the manufacturers, the Maxwell-Briscoe Motor Car Company, of Tarrytown, N. Y.

An increase of $223,830 in gross sales in 1905 over the preceding year is shown by the annual report of the Consolidated Rubber Tire Company. This increase in sales and income from other sources resulted in a net income increase amounting to $14,253. The actual net profits are given as $57,010, which was applied to the payment of interest on the income bonds. The company makes solid tires for carriages and automobiles.

The Kansas City Motor Company has made arrangements to erect a large factory in Kenosha, Wis., according to local report, General Manager Wheeler having signed the contract for the construction of a $250,000 plant just north of the city. The company expects to employ from 300 to 500 workmen. It will issue bonds aggregating $100,000 and sell building lots adjoining the factory, a $100 bond going with each lot sold.

Director Frank Ridgway, of the Department of Public Safety of Pittsburg, is waging the most vigorous campaign against the violators of automobile laws. Last week two more prominent young society women were made to feel the weighty hand of the law, and a number of arrests of well-known men have been made since Director Ridgway took office. His efforts are heartily supported by the Automobile Club of Pittsburg.

The Olds Motor Works has shipped to New York the *Pirate*, a racing car which a few seasons ago made phenomenal time, and was the first American car to do the mile under one minute. The *Pirate* has been engaged by Liebler & Company to be used in their play, "The Vanderbilt Cup," at the Broadway Theater. Ernest Keeler, who is to drive the new Oldsmobile racer in the Vanderbilt race this fall, will run the *Pirate* in the stage race with Tom Cooper, his opponent.

Word has just been received by the H. H. Franklin Mfg. Co., of Syracuse, N. Y., from R. C. Hamlin, its Los Angeles agent, to the effect that Walter Scott, who is best known to the American public as "Death Valley Scotty," recently purchased a six-cylinder Franklin. Mr. Hamlin concluded the deal with the miner-actor after a demonstration in which all of Scotty's cravings for speed were amply satisfied. Speculation has been rife as to the source of Scotty's reputed wealth, and recently it has been rumored that he has lost his roll. Evidently, however, he had about $4,000 more than he could handily spend.

Twenty six-cylinder Fords are on the way from this factory at Detroit to the New York branch. Manager Gaston Plaintiff states that immediate deliveries can now be made, and calls attention to the six-cylinder tendencies of the foreign makers as a justification of the Ford idea. He states that many of the foremost foreign automobile manufacturers whose cars sell from three to five times the price of the six-cylinder Ford touring car, have announced that they will make six-cylinder cars in 1907. Several of the most conservative of the German and French concerns will make racing cars this year to be driven by engines of the six-cylinder type.

Trade changes in Chicago on or about moving day, May 1, included the following: The White Garage took possession of the entire building at 240 Michigan avenue, the second floor of which it occupied for several months; the Bennett-Bird Company, representing the Corbin and Dolson cars, moved to 1470 Michigan avenue; the Hamilton Automobile Company occupies the first floor of 1251 Michigan avenue, and Fanning & Canary, Michelin tire representatives, occupy the second floor at that number, the Fisk Rubber Company, which occupied the building, moving to 1440 Michigan avenue; Apperson Brothers moved to 1240 Michigan avenue, and the Clement-Bayard Automobile Company and Jerome A. Ellis Company now jointly occupy the building at 1408 Michigan avenue. The American Locomotive Company, which is building the Berliet, will open a salesroom as soon as its new building on Michigan avenue near Sixteenth street, is completed.

The Standard Roller Bearing Company, of Philadelphia, whose large plant is located at Forty-eighth street and Girard avenue, that city, is now building a drop forge plant, 80x120 feet, which will be equipped with special drop hammers of 1,200 pounds, 2,000 pounds, and 3,000 pounds each. The company is also erecting a four-story building, 210x100 feet, which will be devoted to the manufacture of annular ball bearings almost exclusively, a small portion of it to be used for the manufacture of automobile axles. The above-mentioned additions will give to the Standard Roller Bearing Company a total of 355,000 square feet of factory floor space. Everything that is used in the business is made under the factory roof except the steel bars. The plant consists of seven distinct departments, as follows: Steel foundry, brass foundry, crucible steel casting plant, drop forge plant, steel ball plant, general machine shop, and manganese bronze factory. Eight hundred hands are employed the year round.

INFORMATION FOR BUYERS.

CLEANOLA.—The makers of this preparation describe it as a perfect automobile body cleaner and varnish preserver. It is first of all a varnish cleaner, and is said to renew and preserve the original luster to a marked degree, and has no unpleasant odor, is a good disinfectant, and is not inflammable. It can be applied either with a brush, cotton waste, or sponge, and is then wiped dry and polished with a dry cloth or waste. It is one of several specialties of the same name, manufactured by the Cleanola Company, 907 West Diamond street, Allegheny, Pa.

GROWTH OF A TIRE COMPANY.—Among the many concerns allied with the automobile industry the Firestone Tire and Rubber Company holds a conspicuous place. Energy and a determination to furnish only high-grade tires has enabled the management to increase the demand for its product so rapidly that increased additions to the plant have been made necessary. The commodious buildings shown in the illustration are equipped throughout with the newest modern machinery, and special attention has been given to the sanitary regulations. A new 800-horsepower engine has just been installed, and the buildings are electrically lighted by the company's own plant.

During the existence of the Firestone Company it has done much to perfect solid and pneumatic tires. Attention was at first directed to the manufacture of solid rubber tires for automobile trucks. The success achieved in this direction was so gratifying that two years ago the company decided to enter a new field, having secured a patent on a mechanically fastened pneumatic tire. This tire, it is claimed, cannot possibly come off in use, but may be easily and quickly removed or replaced by the most inexperienced person. Other advantages claimed, are that danger of pinching the inner tube, and rim cutting, are wholly eliminated. Although this tire has been on the market but a short time, it has been thoroughly tested, both in the factory and actual service.

The Firestone Tire and Rubber Company is frequently called the "rubber tire specialists," as its experts carefully study the requirements of a good tire for vehicles of all descriptions under varying circumstances. It is the company's boast that it can properly equip any vehicle with rubber tires from the lightest carriage to the heaviest truck. Its policy is to make every tire as good as possible in both construction and quality. A continuance of this policy cannot fail to bring continued success to the Firestone Company.

A PORTABLE BUFFET.—This creation is unique in its character. It is a combination of an ice box, light and compact, constructed on scientific principles, with a mahogany cafe top. The accompanying illustration tells the story more forcibly than any word picture of its form and design, and the purpose for which it is used. The ice chamber is composed of a secret compound of great strength and considerable lightness, which has extremely cold insulating qualities. This compound is reinforced by box linings of basswood, and the interior lining is of tinned copper, which completely seals the interior, making it practically impossible to spill the contents. The box is fitted with a specially designed drip valve, operated from above, which allows waste water to flow off, and the valve outlet is flush with the outside, a brass apron preventing liquids from staining the exterior.

WITHERSPOON PORTABLE BUFFET FOR AUTOMOBILES.

The box is sealed by a cover of solid mahogany, which when open forms with the aid of an automatic metal holder a rigid bar piece. Another piece of wood extending to the rear of the buffet forms the opening of the bottle tubes and acts as a receptacle for the drinking glasses. The bottle holders are water-tight tubes of tinned sheet copper, and have a diameter of 37-8 inches, and are of sufficient depth for standard quart bottles. The cover has a recessed interior containing bar supplies and fixtures. A two-candlepower electric light, for use at night, completes the interior fittings.

The exterior is fitted with polished brass handles, and can be easily carried in one hand like a dress suit case. Its outside dimensions are 21 inches long, 15 inches high and 10 inches wide, and from 15 to 20 pounds of ice can be carried. The whole outfit is made so that it can be readily fastened to the running board or other parts of the automobile, for which purpose it is primarily intended. The Wotherspoon Buffet Company, 145 East Forty-second street, New York, are the manufacturers.

AKRON PLANT OF FIRESTONE TIRE AND RUBBER COMPANY.

Personal Trade Mention.

Hon. Ben. L. Jones, president of the Macon (Ga.) Automobile Club, is forming a corporation for the manufacture of automobiles in that city.

John L. Poole, foreign representative for the Olds Motor Works, has arrived in this country on a business trip to the factory at Lansing, Mich.

Thomas W. Fahy, of Hartford, Conn., recently with the Locomobile factory at Bridgeport, has accepted a position in New York as manager of a large garage and salesroom.

Simeon H. Baker has severed his connection with the Baker-Cormerais Motor Car Company, Premier agents at Boston, Mass. The business will be continued by the H. D. Cormerais Motor Car Company.

E. D. Winans, general manager of the Michelin Products Selling Company, Inc., of New York, has acquired the services of M. J. Dobler, as special representative. Mr. Dobler has numerous friends in the trade, who will remember him at the inception of the automobile and bicycle tire industry in this country.

E. Rand Hollander, of the Hol-Tan Company, of New York, American representatives of the Fiat, has returned home from Italy, where he has been visiting the Fiat factory, at Turin. Mr. Hollander was much impressed with the conditions of the automobile industry in Italy, and says the Italians are proving themselves to be very expert mechanics, one of their chief characteristics being the care they give to their work. "Italy is also taking its place in body building," says Mr. Hollander. "One of the big plants there is known as the Carozzeria Rothschild Italiano, in which the Parisian house of Rothschild is a large stockholder. Another plant is being built by Locati & Torretti. The fact that Italy has very few labor strikes has been largely instrumental in the erection of these large works in Italy instead of in France." While in Italy Mr. Hollander was elected a member of the Italian Automobile Club, and later will be named as its official representative to the Automobile Club of America, in charge of the Italian team for the Vanderbilt Cup race. He states there will be three Fiats in the race.

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